A REPORT ON THE NEW BRUNSWICK MINING INDUSTRY: OCCUPATIONAL AND ECONOMIC OUTLOOK TO 1995

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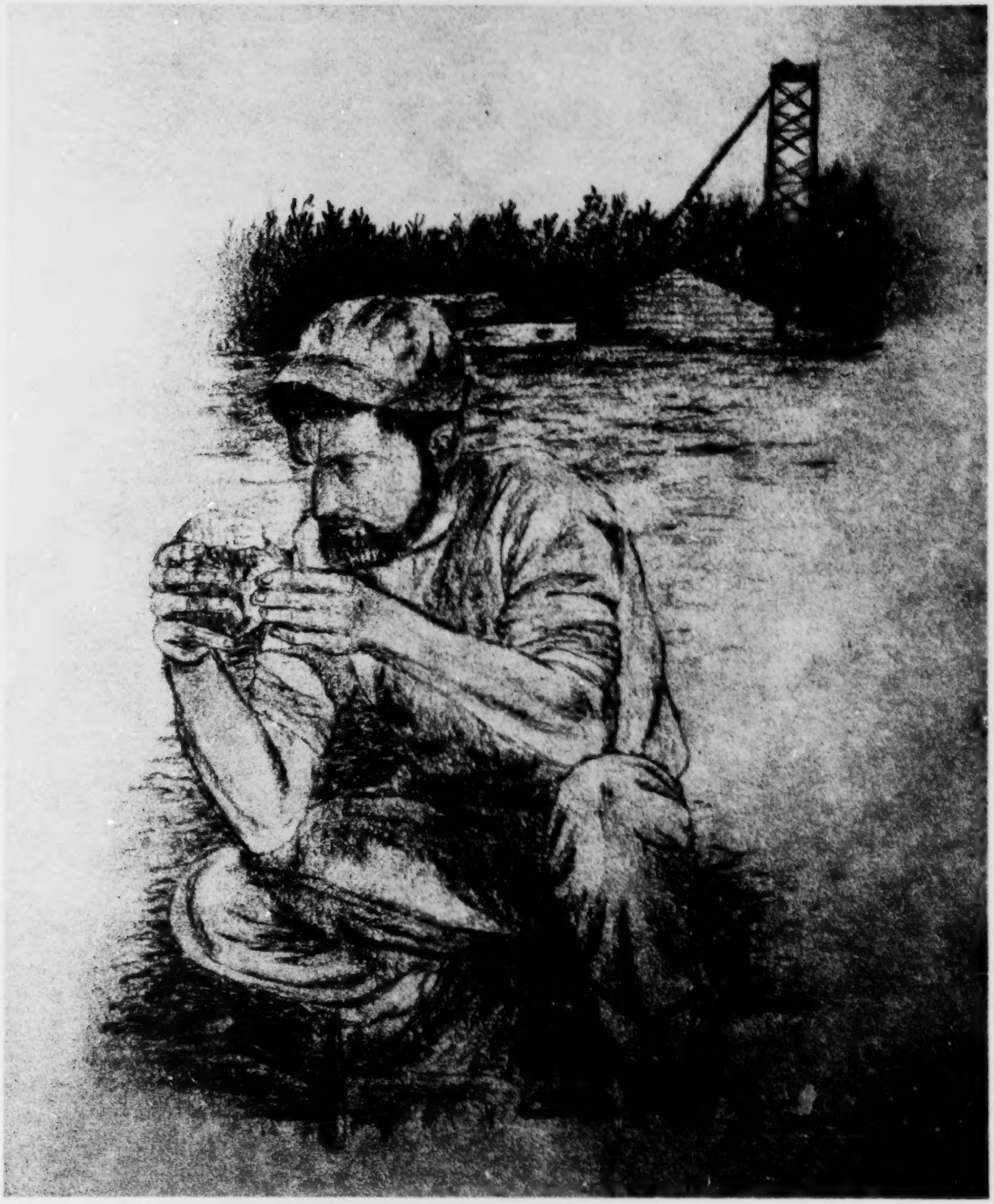

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A REPORT ON THE NEW BRUNSWICK MINING INDUSTRY: OCCUPATIONAL AND ECONOMIC OUTLOOK TO 1995

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I

Introduction

1.1 Purpose of Report

The purpose of this report is to provide a comprehensive examination of the economic and occupational outlook for the mining industry in New Brunswick over the next 10 years. Attention is directed especially to how changing international demand for minerals, technological advancement, and substitute materials are affecting the Province's mining industry, both in terms of economic performance and employment.

This report is an update of one prepared in April 1984. Because of the rapid changes occurring in the industry at the international level, it was felt the original report would benefit from an update; this would consist of reviewing current literature and consulting with government and mining industry representatives.

1.2 Focus of Report

Although the report's focus is on New Brunswick's mining industry, much attention is paid to the industry on a national and international scale. This is done because of the larger context in which the Province's mining industry exists.

The sectors within the New Brunswick mining industry examined in this report are listed below. Each sector comprises one or more sub-sectors, which are assigned conventional 3-digit 1970 Standard Industrial Classification (SIC) codes.

A. Metal Mines:

Although the 1970 Standard Industrial Classification Manual has five sub-sectors composing the metal mines sector, two of these, uranium and iron mines, are not applicable in New Brunswick. For simplicity, New Brunswick's metal mines are grouped as follows:

(i) Gold Mines (Gold, SIC 051;)
Gold Quartz, (SIC 052)

(ii) Miscellaneous Metal Mines (SIC 059)

Included in this subsector are producers of antimony, bismuth, cadmium, copper, lead, molybdenum, silver, tin, tungsten, and zinc.

B. Mineral Fuels:

This sector includes coal mines (SIC 061) and crude petroleum and natural gas (SIC 064). Coal mining, however, clearly dominates this sector in New Brunswick.

C. Non-Metal Mines:

Although four sub-sectors compose the non-metal mines sector, according to the 1970 SIC Manual, asbestos is not applicable to New Brunswick. The three sub-sectors included are peat extraction (SIC 072), gypsum mines (SIC 073), and miscellaneous non-metal mines (SIC 079), which covers mines such as potash.

D. Quarries and Sand Pits:

This sector includes stone quarries (SIC 083) and sand pits (SIC 087).

E. Smelting and Refining:

This sector includes SIC 295. Smelting and Refining is included because it is an integral part of the mining industry in Canada.

F. Manufacturers of Mixed Fertilizers:

This sector includes SIC 272. Fertilizer manufacturing is included because Belledune Fertilizer, one of Noranda Inc.'s holdings, uses the sulfuric acid produced at the Belledune lead refinery (Brunswick Mining and Smelting Corporation Ltd., Smelting Division) in the production of diammonium phosphate for use in fertilizers.

1.3 Outline of Report

Part two of the report commences with an economic profile of New Brunswick's mining industry. Historical mining activity in the Province and its dependence on export markets are

discussed. Attention then turns to an examination of the four major mineral sectors, metals, mineral fuels, non-metals, and structural materials and the likely outlooks facing them.

The economic and occupational outlook to 1995 is the focus of attention in part three. The industry's economic outlook is discussed in general terms, taking into account international developments that may affect employment in the industry. Issues such as technological advancement and industry retrenchment and the effects they are having on employment in the industry are also discussed.

Finally, employment projections to 1995 are made for each sector. Projections are made for those occupations accounting for one percent or more of a sector's employment. Two scenarios are provided for each sector, one being a medium growth (reference) scenario and the other a high growth scenario. Each occupation discussed or listed in the report is assigned a 4-digit CCDO (Canadian Classification and Dictionary of Occupations) code.

The projections may serve as input to the Canadian Occupational Projection System (COPS), a national forecasting model designed to estimate occupational demand and supply by province and industry over a 10 year period. As such, these projections can assist in identifying possible future labour shortages and surpluses.

Because mining is an industry with unique characteristics, any attempt to forecast employment trends requires a synthesis of the numerous elements affecting them. Thus, there is a need for analysis that not only examines the available numerical data but also interprets that data, taking into consideration the views of government and industry representatives and information gathered from mining literature.

II

Industry Profile and Outlook

2.1 Overview

Coal was the first mineral mined in New Brunswick, with the first event occurring in the Grand Lake area in 1639. Although numerous mineral discoveries were made during the next 300 years, it was not until 1953 when base metals were discovered near Bathurst and Newcastle that New Brunswick began to develop a mining industry.[1] Since 1953 mining has played an increasingly active role in the Province's economic growth and development, providing direct and indirect employment to thousands of New Brunswickers.

Mineral production records for the mining industry in the Province extend back into the 1800's. A systematic compilation of production data, however, is only available from 1899. In that year, the total value of mineral production was $420,227 (actual dollars). In comparison, the total value in 1985 was over $552 million (see Table 1). Figure 1 illustrates the growth in total mineral production from 1899-1985, while Figures 2-5 illustrate growth from 1956-1985.

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[1] R.R. Potter, "New Brunswick's Mineral Industry- Past, Present and Future," Canadian Institute of Mining Metallurgy, 1985, p. 81.

Prior to 1953, mineral production was concentrated in coal, natural gas, oil, clay products, and lime. With the introduction of base metal mining in the northeast part of the Province, copper, lead, and zinc became the dominant minerals produced.

Although the Northeast still dominates in terms of mineral production, southern New Brunswick is gaining rapidly in importance with the development of potash deposits in the Sussex area; Gordex Mineral Ltd.'s gold operation near Saint John; Lac Mineral's development of a potential tin mine at Mount Pleasant; and the reopening of Durham Resource's antimony mine at Lake George.

Because of its strong dependence on exports, New Brunswick's mining industry is particularly sensitive to economic shifts in national and international markets. This dependence has contributed to the industry's cyclical nature. For example, during the 1960's and 1970's the mining industry, in general, experienced rapid growth. The United States Bureau of Mines and the private sector forecasted growth rates between 2.5 percent and 5.5 percent for several minerals to the end of the century. To meet this increased demand, forecasters suggested that mineral prices would have to rise to meet higher operating, debt service, and return on investment costs.

The 1981-82 recession abruptly changed these forecasts. Plunging metal prices caused several mines to close, both in New Brunswick and abroad. In the Province, the Heath Steele mine closed in 1983 and the Mount Pleasant Tungsten mine closed in 1985.

While the recession has exerted negative effects on the Province's mining industry, it is still reasonably healthy. Base metal operations have been hurt the most, but there have been some gains with the discovery of precious metals in the Saint John and Bathurst areas. Furthermore, the Province has potential for a variety of other metals (e.g., manganese, magnesium, titanium, vanadium, tin, beryllium, cobolt, indium, and cadmium) that will be required for future technologies.

In addition to exploring for the specialty minerals of the future, more emphasis is being placed on the secondary processing of the minerals produced in New Brunswick. Instead of shipping out of the Province just the raw materials, the intention is to also ship refined and fabricated products. Secondary manufacturing would provide more jobs and increase the value of mineral exports.

2.2 Economic Profile

Because extracted minerals are weighed in different units of measurement, the volumes produced are not aggregated into a

single total for statistical purposes.[2] Historically, most of the Province's minerals have been sold in concentrate form to processing facilities both at home and abroad. Except for lead concentrate, which is processed at Brunswick Mining and Smelting Ltd.'s Belledune smelter, all concentrates are processed in plants outside New Brunswick.

Two refineries in Canada, both in Québec, process large sums of metal concentrates from New Brunswick: Canadian Electrolytic Zinc in Valleyfield processes zinc concentrates and Gaspe Copper in Murdochville processes copper concentrates. All other New Brunswick metal concentrates are exported to Europe, the United States, Italy, and Japan. Potash is exported, via the Port of Saint John, to such countries as the United States, Denmark, Brazil, and Columbia.

Production statistics for New Brunswick's mining industry are summarized in Tables 2 and 3. Detailed statistics by commodity are published by the New Brunswick Department of Forests, Mines and Energy in Open File Report No. 86-2 (Chandra, 1986).

Between 1956 and 1985, the total value of mineral production in the Province rose from $80.3 million to $552.1 million ($1985). Metals reached a peak of just over $660 million in 1979. Since then they have experienced a downward trend, with 1985 recording a value of $415.5 million (see Table 3).

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[2] Minerals such as lead, zinc, and copper are measured in kilograms (previously in pounds), while others such as potash, gypsum, peat moss, and sulphur are measured in metric tonnes. The precious metals, silver, and gold, are measured in grams (previously ounces).

Non-metals, on the other hand, have shown a strong upward trend since 1980, with their value rising from $18.9 million in that year to $60.9 million ($1985). Fuels and structural materials recorded large fluctuations in their value during the 1956-1985 period.

An interesting note is the addition of three new minerals to New Brunswick's mining industry in 1984. The minerals potash, tungsten, and salt recorded a total production value of $39.2 million for that year (see Table 4). Unfortunately, depressed tungsten prices caused the closure of the Mount Pleasant Tungsten Mine in Charlotte County in 1985. Although tungsten prices are not expected to recover in the short-term, over the long-term the orebody will probably become economical. The utilization of the present infrastructure at the Mount Pleasant site by Lac Minerals in their development of a nearby tin orebody is a positive step towards the eventual development of the tungsten orebody sometime early in the next century.

2.3 Occupational Profile

Employment in the mining industry constitutes about two percent of total Provincial employment, double the percentage in Canada. Employment in the industry increased from approximately 3,200 in 1971 to 4,200 in 1981 (based on the 1971 and 1981 Censuses).[3]

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[3] Because of a possible coding problem concerning separating the smelting and metal mining sectors, Statistics Canada's census data should be treated with caution.

Employment growth for some of the sectors composing the mining industry are shown in Tables 5, 6 and 7.[4] The metal-mines sector (Table 5) recorded a modest increase in employment between 1971 and 1981. Most occupations showed either no changes in number or relatively small increases, but a few underwent substantial gains, notably draughtsmen/women, labourers, welders, and millwrights.

Although the small number, in relative terms, of professionals, technicians, and managers prevents the inclusion of the associated occupations in Table 5, based on the criterion of one percent, the importance of these occupations to the metal mines sector should not be overlooked.

The mineral fuels and non-metal mines sectors recorded larger increases in employment than the metal mines sector during the 1971-1981 period. It is important to point out that the employment figure for non-metal mines, obtained during the 1981 Census, precedes recent developments in potash, namely, the commencement of operations at the Potash Company of America Inc.'s and Denison-Potacan's deposits near Sussex.

In general, while the metal mines sector has seen a decline in its labour force since 1981, as reported by the actual employment numbers of metal mining firms, the new jobs created at the two potash mines have counterbalanced this loss.

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[4] Because of their small sizes, the quarries and sand pits and fertilizer manufacturing sectors do not have separate tables. Smelting does not have a table because of the coding problem mentioned previously.

2.4 Metal Mines

Metal mining in New Brunswick is responsible for about 80 percent of total mineral production value. For the period 1956-1985, about $8.3 billion ($1985) of metals were produced. The metals mined in the Province are zinc, lead, copper, tungsten (a new addition to the industry), silver, and gold. Antimony and bismuth are mined in much smaller amounts and account for lower values. Other metals known to exist in New Brunswick include iron (previously mined around Woodstock), manganese, magnesium, titanium, uranium, vanadium, molybdenum, tin, beryllium, nickel, cobalt, indium, and cadmium.

A. Zinc

Zinc has traditionally accounted for approximately two-thirds of total metal production and about half of total mineral production in New Brunswick. Zinc is produced mainly from Brunswick Mining and Smelting Ltd.'s No. 12 mine near Bathurst, ranked as the largest zinc mine in the world with estimated reserves of 110 million tonnes of ore. The mine has a life expectancy of about 30 years, based on a capacity of 10,500 tonnes per day. Heath Steele Mines, the Province's second zinc mine, has been closed for a few years because of depressed prices. An improvement in zinc prices could lead to the reopening of the mine.

New Brunswick ranks second in Canada in zinc production, contributing 4 percent of the world's supply. In terms of reserves, the Province has Canada's largest known reserves of silver, lead, and zinc ore.

Zinc production began in New Brunswick in 1956. In that year over 481,000 kilograms of zinc was produced, with a value of $693,062 ($1985). Over the next two decades, production rose dramatically to a peak of over 264 million kilograms in 1979, with a value of almost $402.1 million ($1985). Preliminary results for 1985 indicate a decline in production to 230.9 million kilograms (see Table 8 and Figures 6 and 7).

Future changes in the production of zinc are likely to reflect the supply-demand market of the world at large. Brunswick Mining is operating at about its designed capacity, and barring unexpected demand arising from any major crisis, it will likely maintain this production capacity into the next century. With a world excess supply of zinc and the possible opening of Cyprus Anvil Mines in Yukon, New Brunswick's production of zinc will more likely remain at the 1985 levels until about 1990-1992. Forecasts of zinc and lead prices indicate that these metals will show considerable improvement by 1990. Based on these forecasts it is expected that Heath Steele will once again be viable by 1990 and will be in production for the next 7 - 10 years.

B. Lead

Lead production, which also began in 1956, has experienced more fluctuations in output and value than zinc. Output, primarily from Brunswick Mines and Heath Steele, reached a peak of 81.4 million kilograms in 1982 (see Table 9 and Figure 8). The peak production value, however, was attained in 1979 at $156.5 million ($1985). This peak value was mainly the result of the highest lead prices since 1945.

Since 1979, a declining world demand for lead has caused prices to plummet, resulting in the lowest lead prices (in real terms) since World War II (see Figure 9). Low prices, in turn, have been responsible for production cutbacks and mine closures worldwide. In New Brunswick, production decreased to 70.3 million kilograms in 1983 when Heath Steele was finally forced to close.

The decline in the demand for lead is the result of two factors: the trend towards smaller SLI (starting, lighting, and ignition) batteries and the strong environmental lobby against leaded gasoline. Because it is unlikely these two trends will be reversed, alternate uses of lead will have to be found if demand is to increase. The only growth in lead consumption is expected to come from an increasing global population.

C. Copper

Like zinc and lead, copper production in New Brunswick began in 1956. From an initial 5,775 kilograms, copper production rose to a peak of 13.2 million kilograms in 1977. Production declined to about 6.6 million kilograms in 1985 (see Table 10 and Figure 10).

The value of copper production has undergone an even rougher time than output. In 1974, the value of copper production was at a peak of $42.3 million ($1985). It fell subsequently to $13 million in 1985. Like lead, copper prices, in real terms, have plummeted to pre World War II levels (see Figure 11).

The major problem affecting copper prices is an oversupply of the metal in the international market. This oversupply is a consequence of excess production by such countries as Chile, Zaire, and Zambia.

In addition to oversupply, copper has suffered from the introduction of substitute materials, for example, plastics, aluminum, and glass used in fibre optics. In fact, the high copper prices of 1978-79 encouraged the use of plastics and aluminum. Any significant gains in the price of copper would further encourage the adoption of substitute materials.

Copper, like lead, faces a bleak future, with the only increase in consumption coming from global population growth. World reserves of copper are sufficient for the foreseeable future. Only the high grade ore deposits will be profitable. Other production will come primarily from co-production in copper-lead-zinc mines.

D. Gold and Silver

Gold and silver production in New Brunswick have traditionally come as by-products from the copper-lead-zinc operations at Brunswick Mines and Heath Steele. Because they are by-products, the quantities produced are related directly to the production performance of the copper-lead-zinc mines. As Brunswick Mines and Heath Steele reached peak output capacities, the production of gold and silver grew correspondingly.

Peak production of silver was reached in 1982 at 230,000 kilograms, (see Table 11 and Figure 12). Peak value of production was reached in 1980 at $139.7 million ($1985) when silver prices reached their highest level (see Figure 13). The closure of the Heath Steele mine caused a reduction in the quantity of silver produced in the Province.

As a by-product, gold production reached its high in 1980 at 275,000 grams (see Table 12 and Figure 14). The value of production also peaked that year at $8.3 million ($1985). This peak value coincided with the highest ever recorded gold prices (see Figure 15).

In 1983, at the closure of the sulphide operation at Heath Steele, the mine was converted to treat the gossan ore containing both silver and gold. The cyanide treatment process started in July 1983 and continued to October 1984. As a result, peak production of gold was reached in 1984 at 781,000 grams. Silver also showed a rebound to 271,000 kilograms from

198,000 kilograms of the previous year. In 1985, gold production declined to 252,000 grams and silver to 187,000 kilograms, both coming mainly from Brunswick Mines.

A new era of gold production began in New Brunswick in 1985 with the commencement of its first primary gold mine at Cape Spencer near Saint John. Leach testing of ores are underway at the site, and it is anticipated that commercial production will begin in the fall of 1986.

E. Other Metals

Antimony was discovered in the Lake George area during road building in 1863 (Dunham Resources Inc., 1985). Mining and Smelting were carried out intermittently until 1910 when it was closed becuase of arsenic problems that the early operators could not solve. The mine was acquired by Consolidated Durham Mines and Resources Ltd. in 1970, and production began in 1972 at a value of $2.3 million ($1985). Peak production was reached in 1977 at $12.1 million ($1985).

The mine was closed in 1981 when the ore was depleted. Exploration at the site, however, identified additional reserves of 775,000 tonnes. Consequently, the mine was reopened in 1985, operating under the name Durham Resources Inc.

The value of production at the mine amounted to $1.1 million in 1985. Full production is not expected until late in 1986. Declining antimony prices, resulting from weak demand, are making their presence felt at the mine.

Tungsten concentrate was first produced commercially in the Province at Billiton's Mount Pleasant Tungsten mine in 1984. The commencement of operations coincided with depressed tungsten prices, and sales the first year were $12 million ($1984). Sales dropped to $5.3 million in 1985, and low prices finally caused the mine's closure on July 31, 1985. Tungsten prices fell from a high of U.S. $303 MTU ($1985) in 1977 to a low of US $66 in 1985 ($1985). Molybdenum, which was to have been a co-product at Mount Pleasant, suffered similar price drops. Prices declined from a high US $12.25 per pound ($1985) in 1980 to a low of US $3.25 per pound ($1985) in 1985.

Both metals continue to show poor performance, and all forecasts indicate that these metals are not expected to be profitable until the turn of the century.

2.5 Mineral Fuels

A. Coal

Coal has been mined from the Minto coal fields in New Brunswick since 1639. From a production of $11,030 ($1891), the value of coal production climbed to a peak of $35.09 million ($1985) in 1960. Production peaked in 1964 at 907,000 tonnes, declining thereafter to a low of 354,000 tonnes in 1974.

In response to the OPEC oil embargo following the Arab-Israeli conflict of 1973, oil prices shot up on the international oil market, thereby creating a favorable climate for coal development. New Brunswick was not late in responding,

and once again coal production experienced rapid growth (see Table 13 and Figure 16), reaching a maximum in 1983 at 565,000 tonnes and a value of $32.19 million ($1985). The recent economic recession and current depressed oil prices have so far had very little effect on coal production. The value of coal production in 1985 was $29.8 million. Indications are that this value of production will be maintained to the 1990-1995 period. Possibly of major consequence to the coal industry is the new environmental controls on sulphur dioxide emission. Because New Brunswick coals contain sulphur bearing pyrite, the cost of scrubbing emissions from coal fired plants are expected to increase.

All coal production in New Brunswick is sold to the New Brunswick Electric Power Commission. In 1984 coal from Minto accounted for approximately 5 percent of the total energy needs of New Brunswick.

The burning of coal and oilshale in a circulating fluidized bed is to be tested at the New Brunswick Electric Power Commission's Chatham Generating Station (22 MWe). The technology exists to burn coal and limestone together to reduce sulphur dioxide (SO_2) emissions. Using oilshale instead of limestone, there will be the added calorific value of the combustibles of the oilshales. The successful testing of this technology could lead to the establishment of a 150-200 MWe generating station using coal and oilshale.

B. Natural Gas

Natural gas is not a major commodity produced in New Brunswick. Since 1974, it has accounted for less than one tenth of one percent of gross mineral production. Production started in 1916 at 17.2 million cubic metres, with a value of $756,389 ($1985). Production reached a peak in 1921 at 20 million cubic metres, afterwhich it began a steady decline. Since 1980, natural gas production has remained stable at about 2 million cubic metres annually. No major reserve has yet been identified, and thus, natural gas is not expected to make an impact in the mineral industry of the Province for the foreseeable future.

C. Crude Petroleum

Like natural gas, crude petroleum production has been a very small part of the Province's mineral production. Production, which started in 1911 at 2,461 barrels, peaked in 1941 at 31,359 barrels, with a value of $329,989 ($1985). Since 1941, production has rapidly declined to approximately 6,000 barrels in 1985. The dramatic downturn of international oil prices has forced a slowdown of oil exploration worldwide. While oil exploration is being continued in New Brunswick, no major reserves have yet been identified. Crude oil is therefore not likely to affect the New Brunswick mining industry in the foreseeable future.

2.6 Non-Metal Mines

A. Potash

Non-metals have traditionally accounted for about 4 percent of total mineral production value in the Province. With the commencement of operations in 1983 at the new Potash Company of America Inc. (PCA Inc.) mine near Sussex, non-metals increased their share to almost 8 percent of total mining production value.

This $210 million project, involving a mine, a concentrator, and storage facilities, recorded its first shipment to Denmark in January 1984. This shipment came 13 years after sylvite, the ore of potash, was first discovered in the Sussex area in 1971. Although the plant was operating initially at 40 percent capacity, projections are that it will reach full production by the second quarter of 1987.

A second potash deposit in the Sussex area, developed by Denison-Potacan, came on stream in 1985, boosting non-metal production to $60.9 million and to 11 percent of the total value of mineral production. This $350 million project is expected to reach its full capacity of 1.3 million tonnes annually by mid 1987. Reserves are estimated at a minimum of 20 years for each of these two operations, which by 1990 will contribute at least twice as much in revenues as in 1985. Non-metals, by 1990, will account for over 20 percent of gross mineral production.

There is also the possibility of another potash mine in the Sussex area in the future. BP Resources Canada has conducted surface exploration work on a potash deposit at Lower Millstream, west of Sussex. BP is expected to make a decision on whether or not to proceed to the underground exploration stage as soon as their market studies are completed.

The development of the potash industry has yielded salt as a by-product. For the period 1980-1985, salt contributed $16.1 million ($1985) to the mineral industry, with a peak value of $7.7 million ($1985) in 1984. It is expected that salt will continue to add to the gross annual value of the Provincial mineral production.

B. Silica

Silica was first produced in 1974 from a quarry located at Bass River, approximately 6 kilometers east of Bathurst. A second deposit near the Nepisiquit river was found in 1983. The Bass River deposit has been operated by Chaleur Silica Ltd. at Petit Rocher, which produces 77 to 91 tonnes per day. Since 1978, value of production has climbed from $180,736 to $1.2 million ($1985) (see Table 14). Chaleur Silica Ltd. has been the primary source of silica flux for the smelter at Belledune, but some silica is also bagged as sandblast sand.

A second potential silica operation controlled by Sussex Silica Inc. is expected to go into commercial production in the summer of 1986. This operation is expected to process over

100,000 tonnes of material per year to produce silica pebbles, course sand, and fine sand. The addition of this operation will double the present silica production in New Brunswick.

C. Peat Moss

New Brunswick is the second largest peat moss producer in Canada, with 17 producing bogs operated by 15 companies. It has over 100,000 hectares of peatlands, with estimated reserves of 2.1 billion cubic metres.

Peat moss production began in New Brunswick early in the century. Commercial production did not gain prominence, however, until after World War II. In 1946, 2,039 tonnes were produced, with a value of $367,491 ($1985). Since then, peat production has grown to be a major industry for northeastern New Brunswick (see Table 15 and Figures 17 and 18).

In the production of horticultural peat, New Brunswick ranks second to Québec. As a result, New Brunswick finds itself in direct competition with Québec producers for the lucrative American market. A market study carried out by Hickling Johnson Ltd. et al in 1973 identified four market segments in eastern North America to which the major portion of New Brunswick's production is directed. It would appear from the study that the prime market segment for the New Brunswick producers is the heavily populated northeastern states.

Transportation remains the single largest cost to New Brunswick producers, accounting for 36 to 40 percent of the delivered cost. Because domestic rail and truck rates keep

increasing regularly, it is necessary for the industry to concentrate research on increasing the volume of peat per bale shipped. This can be achieved by increasing compaction and reducing the water content, which in turn lowers the weight.

The United States has traditionally been New Brunswick's biggest buyer. Based on the trend line of United States demand, growth in the horticultural use of peat is expected to reach 1.3 million tonnes in 1990 and 1.6 million tonnes in 2000. Historical data also indicate that United States peat production has accounted for 70 percent of total U.S. demand, with the other 30 percent coming from exports, mainly from Canada.

A projection of United States imports to the year 2000 (Figure 19) indicates an average annual increase in demand of 2.5 percent, or an additional 52 percent by 2000. Because Canada accounts for nearly all of United States imports, it can be assumed that Canada and New Brunswick can expect an annual growth potential of 2.5 percent per annum. With aggressive marketing New Brunswick can improve on this figure.

Other growing potential markets are places such as the Middle East and Southeast Asia. In 1984, Japan accounted for almost 11 percent of New Brunswick's exports. This segment of the market was nonexistent during the 1970's and suggests that major potential exists for New Brunswick to improve its export market outside continental North America.

D. Sulphur

Sulphur production in New Brunswick started with the smelting industry at Belledune, west of Bathurst. It has grown from a value of $95,609 ($1985) in 1958 to an impressive $11.6 million in 1985 (see Table 16 and Figures 20 and 21). It now contributes over 2 percent to the value of gross mineral production in the Province. Sulphur is recovered in the form of sulphuric acid from two locations: Brunswick Mining and Smelting's Belledune smelter and the Irving Oil Refinery in Saint John.

There is major potential in New Brunswick for the extraction of sulphur. A significant reserve of sulphur exists in the over 55 million tonnes of pyritic mine tailings from Brunswick Mining and Smelting's No. 6 and No. 12 mines and from Heath Steele. It has been estimated that mine tailings from the base metal mines in the Bathurst area hold between 32-38 percent contained sulphur, or approximately 1 tonne of sulphur in every 3 tonnes of tailings.

The technology to extract sulphur from pyritic ore is already in place and is being used in countries such as Germany and Italy. In New Brunswick tailings are on the surface, making it relatively easy to remove and process.

Another potential source of sulphur is from the Sulphation Roast Leach process now being tested by Enhanced Recovery Ltd. at their test facilities in Chatham. This process is to test the feasibility of economically treating low grade base-metals for copper, lead, and zinc. A product of this process is sulphur in the form of sulphuric acid.

2.7 Structural Materials

A. Limestone

Limestone was first mined in New Brunswick in the early 1700's. The industry, however, did not start to develop until the late 1800's. In 1886, value of production was $58,120 ($1985). The industry grew slowly until the late 1950's, after which it rapidly deteriorated to zero production in 1969-1970. Production resumed in 1971, recording an increase of $5.3 million ($1985) in 1984 and 1985 (see Table 17 and Figure 22).

Limestone is produced in several locations in the Province, for example, Saint John, Petit Rocher, Sormany, and Havelock. Provincial reserves are well over 100 million metric tonnes, thereby guaranteeing adequate supplies to allow for future expansion. Limestone is expected to continue to play a significant role in the Province's mineral industry well into the next century.

B. Cement

Since 1956, cement production has contributed $408.5 million ($1985) to the Province's mining industry (see Table 18 and Figure 23). Before metallic minerals came on the scene, the mining industry was dominated by coal, limestone, and cement. In 1958, cement contributed 18 percent of the value of gross mineral production in New Brunswick. While the cement industry has grown, its contribution in terms of gross value of production declined to 2.7 percent in 1985.

The industry slowed down dramatically in the high inflationary period of 1979-1983 and suffered a major drop in the last recessionary period of 1982-1983. This decline is attributed to the drop in constructon activities throughout the market region. Because cement is highly sensitive to economic factors, such as interest and mortgage rates, it is expected that recovery in production will lag behind economic recovery. Value of production in 1984 and 1985 showed some increases, and this is expected to continue through the next decade. The high production levels of the 1978-1979 period are expected to be reestablished by the early 1990's.

The Havelock area contains high grade limestone, greater than 53 percent calcium oxide (CaO), and is ideally suitable for making specialty cements. Present oil prices, however, have curbed offshore oil and gas exploration, and subsequently reduced the demand for specialty cements.

C. Sand and Gravel

The importance of sand and gravel has often been overlooked in the mining industry. In terms of their contribution to the gross value of mineral production in the Province, sand and gravel outrank most other commodities, except for zinc, copper, lead, silver, coal, peat, and potash.

Like cement, sand and gravel are commodities that are very sensitive to interest rates. In times of weak construction activity, such as was experienced by cement in the recent high inflationary period, the volume and value of sand and gravel diminished considerably.

Since 1958, sand and gravel have contributed $329.1 million ($1985) to the gross value of mineral production in New Brunswick (see Table 19 and Figure 24). Transportation remains the biggest cost in this industry and has contributed to shortages of this material to cities such as Moncton and Saint John. Prices vary considerably in the Province, depending on transportation factors such as distance and volume. Provincial reserves are adequate to meet foreseeable demand; however, transportation will remain a problem.

D. Stone (Building and Ornamental, and Crushed)

Stone has a long history of production in New Brunswick, dating back to the late 1800's. It was exported as far as New York where many of the "brown stone" buildings were built with New Brunswick sandstones (Potter, 1985).

Historically, building stone played a significant role in the industry. Crushed stone has become, however, the dominant type of stone produced in New Brunswick.

Crushed stone, like cement, sand, and gravel, is very sensitive to construction activity. It has experienced, however, a better performance in growth compared to the other structural materials. The stone industry in New Brunswick recorded rapid growh in the 1967-1982 period (see Table 20 and Figure 25). While cement, sand, and gravel production were affected markedly during the recent recession, stone production did not lose much ground. In fact, it began to show signs of recovery in 1985.

2.8 Exploration Activity

Mineral exploration is a cyclical activity dependent on the health of the mining industry. In poor economic times, mineral exploration is perhaps one of the first segments of the mining industry affected. Loss of revenues because of weak sales or low prices leads directly to cutbacks in exploration expenditures. A good example is the oil exploration industry, which is down considerably because of poor oil prices.

Rapid fluctuations in staking activity is a common feature in exploration. This is a consequence of the industry's competitive nature, where group response may quickly follow after a discovery, thus leading to a "staking rush". This

assessment files and reports list the type of work carried out and the dollars spent. It has been estimated that only 30-40 percent of such activities are reported annually (see Table 22 and Figure 27). It can be assumed, therefore, that over three times the reported value is actually done each year.

From Table 22 and Figure 27, it can be seen that expenditures on exploration are cyclical in nature. Figure 27 also shows that exploration activity has increased over the years. The peak of 1955-1957 was an anomaly resulting from the staking rush in the Bathurst camp following the discovery of deposits that became the Brunswick No. 6 and No. 12 mines. Exploration expenditures, however, showed a decline for the years 1981-1984. This decline was directly related to the recent recession and depressed metal prices. Activity began to pick up in 1985 and should continue through to 1990. This forecast of increased exploration activity is attributed to the influence of the new Mineral Development Agreement between the Province and the Federal Government and the release of data coming from work carried out under this agreement.

III

Economic and Occupational Outlook to 1995

3.1 Economic Overview

Mining in Canada is entering a period of rapid economic and technological change. Changing patterns in the consumption of minerals, resulting from energy conservation measures and the introduction of new technologies, are placing limits on the potential growth in international demand for minerals. In addition, the post war rebuilding of Europe and Japan is complete and the demand for raw materials has diminished to the point where it has become population sensitive. Per capita consumption of raw materials in the industralized world has increased for most commodities; however, this has been counterbalanced by the decline in the rate of population growth.

Increasing foreign competition is also a cause for serious concern to the Canadian mining industry. Much of this competition is coming from developing countries, which have the ability to draw on a generous supply of cheap labour and accessible, untapped high grade mineral resources. Furthermore, heavy government subsidization, currency devaluations and state-of-the-art extraction methods have allowed them to produce at costs that cannot be matched. In Canada, labour costs account for about 40 percent of operating costs. In some instances, therefore, the cost of labour alone can be the

deciding factor whether or not a mine is profitable. In terms of productivity, however, Canadian miners are among the best in the world and continue to hold this advantage.

The situation is similar in the United States where many copper and lead mines have been closed, some permanently. The strong U.S. dollar is a major contributing factor. Another factor is the stockpiling policy of the United States government, whereby sales of inventory have contributed to the lowering of some metal prices.

The ongoing shift from developed to developing countries in the extraction and processing of metals is gradual but steady. A major reason for this occurrence is that these developing countries see the resource industries as a means of repaying huge foreign debts and providing the foreign exchange so desperately needed for domestic economic development.

Canadian mining firms are not unaware of the developments mentioned above. The trend of increasing resource development in third world countries has been recognized by the Canadian mining industry. Although this development was forecasted, its intensity has escalated since the inflationary period of the early 1980's.

Canadian mining firms have suffered heavy financial losses because of the recession and weak metal demand. Although several mines have closed, there is a concerted effort to mitigate these negative effects. Research and development

spending has been increased. For 1983, the most recent year for which complete figures are available, R and D spending in Canada was $41 million. This amount was expected to rise to $50 million in 1985.[5] Mining companies are actively implementing cost cutting measures and are streamlining their operations to work more efficiently. The high cost of fuel in the late 1970's lead to energy saving methods that have cut fuel consumption in the ore processing sector. This saving has magnified as a result of the recent drop in oil prices.

The main focus of current R and D in the mining industry is on automation in underground mines. Automation is accelerating rapidly, and three specific areas receiving increased attention in R and D spending are instrumentation for remote monitoring and control, improved underground communication, and software design in the operation of computer controls. In short, the greater attention being directed to R and D is the result of Canadian mining firms realizing that if they are to compete internationally costs must be reduced by increasing productivity.

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[5]Anon., The Northern Miner, 18 April 1985, P.B2.

In New Brunswick, positive steps are being taken to ensure the Province's mining industry remains competitive. In June 1984, for example, the Canada-New Brunswick Mineral Development Agreement was signed. This agreement, which involves spending commitments of $22.3 million by the Federal and New Brunswick Governments, covers three main areas: geoscientific research, R and D of new technologies, and economic development studies.[6]

Although New Brunswick is fortunate to have a diverse mining industry, a substantial portion of its total produciton is concentrated in base metals such as zinc, copper, and lead. Potash is now rapidly becoming another major contributor.

The decline in base metal prices has forced the rationalization of many high cost producers, both at home and abroad. Consequently, inventories are rapidly being depleted and producers are anticipating price increases to follow. While gains are not expected to be tremendous, there will be sufficient change to allow for a gradual recovery. Zinc, silver, and copper markets are already showing gains.[7]

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[6]Anon., "Metal Markets," The Northern Miner, 28 April 1986.

[7]"Energy, Mines and Resources, Regional Mineral Developments", Canadian Mining Journal, February 1985, P. 31.

Prices for these minerals have declined in recent years. Forecasts, however, indicate that while prices are not expected to reach the highs of the 1970's, a gradual improvement will be evident by 1990, sufficient to allow for the reopening of some mines in Canada. Forecasts of lead, zinc, copper, and silver prices indicate that Heath Steele mines will again be viable by 1990-1991. The industry on the whole has shown signs of recovery, and Noranda and other major mining companies in Canada are forecasting some profits for 1986.

3.2 Employment Outlook Overview

The international mining industry is undergoing profound changes in the distribution of mining activity worldwide and in the types of minerals being extracted and processed. The emergence of new producers, especially those in the developing countries, is not only increasing the level of competition but contributing to the oversupply of many minerals. Furthermore, new technologies are introducing more and more synthetic materials that are rapidly replacing conventional metals. Robotics and advanced manufacturing methods using CAD/CAM systems have increased material efficiencies by introducing new designs that are stronger, use less material, and more adaptable to mass assembling. Advanced technologies have also introduced new, lighter, and more efficient alloys. New painting techniques have improved the anticorrosive properties of some fabricated parts.

The effects rapid economic and technological changes are having on the mining industry are widespread and penetrating. In the attempt to remain competitive, most metal producers are undergoing substantial retrenchments in their operations. The entire industry is being reexamined, and every segment is being scrutinized to trim inefficiencies and reduce costs.

Labour costs in Canada account for approximately 40 percent of operating costs in a typical hard rock mine. Because of this, stricter controls on productivity have lead to declines in employment at both the mining and processing levels of the industry. The industry has softened the impact by offering early retirement and is in the process of further reducing employment through attrition.

Declining employment remains the most difficult problem to deal with in terms of the social and economic impacts on communities. The industry is also plagued by higher capital costs and the cost of financing renovations and improvements to mines and mills. Debt/equity ratios of most major mining organizations have grown to unbearable proportions in recent years, brought on by high interest rates. A restructuring of the industry is underway, with rationalization of the more costly segments being dropped. Canadian companies are in the process of "trimming the fat" and getting rid of "albatrosses". It is a healthy process that will, in the long run, strengthen the industry and make it a force to be reckoned with.

Cost cutting measures will lead to a higher degree of automation both in mining and processing. Robotics and computer control systems are rapidly changing the industry to one of higher efficiency, and consequently, lower per unit output costs. Unfortunately, innovation comes at a price. Advanced technologies will reduce labour requirements in the unskilled labour sector. These technologies, however, will introduce jobs to those industries that support and service the mining industry.

To project the labour requirements for the next 10 years, it is necessary to evaluate the growth rates of each sector, taking into consideration available resources, economic conditions, capital cost expenditures, and, most importantly, the forecast consumption growth in that particular commodity. It must be emphasized that it has been estimated that for each direct job created in the mining industry, at least five other jobs are created in the service and support sectors.

3.2.1 Metal Sector Outlook

A. Copper, Lead and Zinc

With respect to base metals, present consumption and demand trends are showing general improvement. In fact, it is the general opinion among mineral economists that the worst is over and that indications are for a slow but sure recovery. Forecasts show that zinc, lead, copper, and silver prices will improve over the next few years, and that by 1990-1991 increases in demand and prices will be sufficient to see Heath

Steele reopen. The reopening of Heath Steele would see a return of at least 400 jobs related directly to the mine. At a minimum, Heath Steele would be expected to last until 1995. Exploration activity at the mine is in progress. Additional ore reserves are possible both from the Heath Steele property and from other nearby deposits.

B. Gold

Traditionally, gold has been produced as a by-product from the lead-zinc-copper mines. Gold may soon be produced as a primary product at Gordex Minerals Ltd.'s gold mine at Cape Spencer near Saint John. Gordex is currently testing a gold leaching process and plans to be in commercial production in the fall of 1986. When in full production, the mine is estimated to employ between 30-40 permanent employees. With potential reserves of about 3 million tonnes and an annual capacity of 125,000 tonnes, the operation could last into the next century.

In addition to Gordex's gold operation at Cape Spencer, there is also the possibility of at least two additional gold mines by 1990. These two additions would be of similar size in terms of labour requirements. The first is Northumberland Mines Ltd's. Murray Brook deposit and the other is Lacana Mining Corporation's Alcida deposit. Both of these deposits are in the Bathurst region. By 1990, therefore, it can be estimated that at least 120 new jobs will be created in the primary gold mining sector.

C. Antimony

With regards to antimony, New Brunswick's primary production comes from Durham Resources Inc's. antimony mine at Lake George. This mine has traditionally produced concentrates for the American and European markets. In recent years, the price of concentrates has been doing badly compared to the price of the metal. As a result, Durham Resources has been hard pressed to make profits from the sale of concentrates.

Durham Resources is now investigating the possibility of further processing their concentrates to a metal product. This will give Durham Resources the option of selling either the concentrate or the metal as the market dictates. With the implementation of this processing facility, Durham Resources potential will be maximized and production will be more streamlined. At present, Durham Resources employs about 85 people. With the addition of the processing facility, this number will likely reach 100.

D. Tin

Lac Minerals, in a joint venture with Billiton, is investigating the tin potential of the Northzone deposit, one kilometer north of the Mount Pleasant tungsten deposit. A 1200 meter inclined ramp has been completed between the present mine site and the Norhtzone deposit. Lateral development is currently underway at the end of the ramp to allow for drilling into the Northzone orebody. Preliminary results indicate there

is an economical orebody in place; however, much more orebody definition is required by drilling. This will be followed by bulk sampling and testing before a decision to develop is made.

While tin prices have plummeted since October 1985, as a consequence of the International Tin Council's failure to control prices, forecasters are calling for a rally in prices by 1987-1988. It is not expected that tin prices will reach pre-October 1985 prices, but estimates are that tin will regain about two thirds of that value. Lac Mineral's tin deposit at Mount Pleasant, in all likelihood, will be viable at such a price. Because most of the infrastructure is already in place from the previous tungsten operation, production will follow quite quickly after the decision to proceed has been made. A probable start up could come by the turn of the decade, thereby adding between 250 to 300 new jobs into the next century.

3.2.2 Non-Metal Sector Outlook

A. Potash and Salt

Potash is currently being produced from Potash Company of America's mine at Plumweseep (Sussex) and Denison-Potacan's mine at Cassidy Lake. Another possible newcomer to the New Brunswick potash scene is BP Resources Canada's development of the Lower Millstream deposit. The Lower Millstream deposit is

still being explored by B.P., but indications are that this deposit could be viable by the turn of the decade. Potash prices are expected to improve over the long term, with favourable markets developing both in the United States and in Europe. Commercial production in the 1990's would provide an additional 250-300 jobs into the next century.

B. Peat

There are currently 15 active producers in New Brunswick, creating an equivalent of about 466 fulltime jobs in 1985. While the actual number of people employed in 1985 was over 800, many positions were seasonal because of the seasonal nature of harvesting.

This industry is expected to grow at a minimum of 2.5-3.0 percent per annum into the next century. This growth is expected to come from increased demand from the United States market. In addition, higher demand is expected to come from increased sales to Japan and the Middle East. Japan has accounted for greater than 11 percent of New Brunswick's exports in 1985. This growth is expected to continue.

The last decade witnessed the mechanization of the New Brunswick peat industry. Although the workforce saw little growth during this time, the trend is for a gradual increase in employment.

The forecasted 50 percent growth in the peat industry by the year 2000 is expected to come in two ways. Increased production will come from the current producers through the

process of expansion. Also, it is anticipated that at least another 3 to 4 new producers will come on stream. It can be assumed that while increased mechanization will be a crucial factor, labour will nevertheless increase by at least 2-3 percent annually to keep pace with production. By 1995, it is expected an additional 130 new fulltime positions will be created in the peat industry.

3.2.3 Mineral Fuel Sector Outlook

This sector is not expected to show any major increases in employment in the next decade. Oil and gas make up less than one tenth of one percent of the Province's mineral industry and accounts for less than five jobs annually. Oil shale is currently undeveloped and will likely remain so until international oil prices recover to the level where the process of extracting oil from oil shales can be economical.

One future hope for oil shale is in its combined use with coal in the thermal generation of electricity and sulphur capture. A method of using the coal/oil shale combination is being tested at a New Brunswick Electric Power Commission's thermal plant (20 megawatt electricity) in Chatham. Results of preliminary tests are not yet available, and there is no data to indicate at what price this fluidized bed coal/oil shale burning process will be economical with oil. However, in addition to its competitiveness with oil, other factors such as the preservation of jobs at Minto will also have to be considered.

Coal is the major contributor of the fossil fuels to the Province's energy sector, accounting for the equivalent of 260 full-time jobs in 1985. Coal has contributed approximately 5 percent of the total net energy requirement of the Province in 1984. Its importance, therefore, cannot be overlooked. The Provnce has the available reserves to continue production well into the next century.

Any future growth in this sector will depend largely on the price of oil over the next decade. A stable employment level to 1995 is the most probable scenario.

3.2.4 Other Commodities Outlook

While the metal sector of the Province's mining industry has suffered major losses in recent years, most other commodities have shown positive growth. Among these are limestone, sulphur, clay products, stone, and sand and gravel. Production of these commodities grew, despite the harsh economic climate. And in most cases they were able to match or exceed their best years.

The improved economic climate of the 1990's will see a resumption in the high growth rate of these commodities, which are expected to double by the turn of the century. As a result, this renewed growth will provide additional jobs to meet the demand for these commodities. The opening of Sussex Silica Inc's. silica mine in the fall of 1986 is a positive sign for the non-metallic sector. This mine will provide at

least 10 full-time jobs when it has reached production. Some of its products will be used for silicon metal, silicon carbide, sandblast sand, and glass. In addition, some clay will be recovered as a by-product and could be used in ceramics. Local consumption and use of these products will, via the multiplier effect, generate additional jobs in the area.

3.3 Occupational Outlook

Because of several potential developments in the Province's mining industry, two scenarios are used for the occupational projections for the metals and non-metals sectors. Only one scenario is provided for the mineral fuels sector because of no expected significant changes or developments.

The first scenario is called the Reference Scenario and is based on the status quo; that is to say, no new developments come on stream, the metals sector experiences continued retrenchment, and non-metals continue modest growth.

The second scenario is called the High Growth Scenario and takes into account several developments that may occur in the industry and the effects they would have on employment. Increases in employment are distributed across occupations according to their 1981 levels. For the metals sector, the following developments are assumed to occur: 1) reopening of Heath Steele Mines (400 jobs); Murray Brook and Lacana (120 jobs); addition to Durham (15 jobs); and Lac Minerals (250 jobs).

In the non-metals sector, BP Selco is assumed to commence production (250 jobs) and expansion of peat will create 130 jobs.

The projection of employment for the metal mines sector is portrayed in Table 23. In the Reference Scenerio, most occupations will show a decline in employment. A few will remain stable, especially those requiring higher education and/or higher skill levels. These include chemists, geologists, electrical engineers, and electronic data processing operators. In the High Growth Scenario, employment is forecast to increase for all occupations, although their rate of increase is governed by such factors as mechanization and automation. Between 1990 and 1995, however, some occupations are forecast to undergo slight declines in employment because of technological advancement.

For the mineral fuels sector, which has only one scenario, employment is forecast to remain stable (see Table 24). This is based on an average oil price in the vicinity of $30 per barrel over the long-term.

Employment in the non-metals sector is forecast to remain stable under the Reference Scenario. In the High Growth Scenario, however, employment is forecast to undergo a substantial increase, with much of this growth coming from BP Resources Canada's development near Lower Millstream (see Table 25).

V

Conclusion

New Brunswick's mining industry continues to play a vital role in the Province's economic growth and development, and this role is expected to become even more pronounced as mining activity increases. The industry, however, is undergoing retrenchment, the result of the aftermath left by the 1981-82 recession, increasing competition from foreign producers, and continued depressed mineral prices. This retrenchment is contributing to layoffs and reduced employment through attrition.

The industry is also in the process of adjusting to technological change, which is altering the occupational structure and demand requirements for occupations. Technological change is causing distinct changes in how jobs are being performed in the mining industry. Automation is not only reducing the numbers of workers required, but is also lowering the skill levels of some jobs. Mechanization, although also resulting in a need for fewer workers to accomplish the same amount of output, is demanding an increase in the skill levels of workers because of the use of more complicated machinery and equipment.

Under the Reference Scenario, occupations that may experience increases in demand include chemists, geologists, electrical engineers, and electronic data processing operators.

APPENDIX I

TABLE 1

NEW BRUNSWICK TOTAL VALUE OF MINERAL PRODUCTION
1899 - 1985

YEAR	CURRENT DOLLARS	CONSTANT 1985 DOLLARS
1899	$420,227	NA
1900	$439,060	NA
1901	$467,985	NA
1902	$607,129	NA
1903	$580,495	NA
1904	$559,913	NA
1905	$559,035	NA
1906	$646,328	NA
1907	$664,467	NA
1908	$579,816	NA
1909	$657,035	NA
1910	$581,942	NA
1911	$612,830	NA
1912	$771,004	NA
1913	$1,102,613	NA
1914	$1,014,570	$10,578,211
1915	$903,467	$9,267,855
1916	$1,118,187	$10,614,502
1917	$1,436,024	$11,480,192
1918	$2,144,017	$15,151,125
1919	$1,770,945	$11,377,082
1920	$2,491,787	$13,840,880
1921	$1,901,505	$11,973,967
1922	$2,263,692	$15,564,467
1923	$2,462,467	$16,931,116
1924	$1,969,260	$13,763,158
1925	$1,743,858	$12,055,465
1926	$1,811,104	$12,385,597
1927	$2,148,535	$14,934,252
1928	$2,198,919	$15,284,466
1929	$2,439,072	$16,680,082
1930	$2,383,571	$16,477,865
1931	$2,176,910	$16,681,008
1932	$2,223,505	$18,730,584
1933	$2,107,682	$18,617,998
1934	$2,156,151	$18,785,250
1935	$2,821,027	$24,410,629
1936	$2,587,791	$21,944,468
1937	$2,763,643	$22,827,138
1938	$3,802,565	$31,005,735
1939	$3,949,433	$32,411,022
1940	$3,435,916	$27,146,142
1941	$3,690,375	$27,612,862
1942	$3,609,150	$25,647,399
1943	$3,676,754	$25,697,393
1944	$4,133,902	$28,734,339
1945	$4,182,100	$28,911,276
1946	$4,813,166	$32,223,184
1947	$5,812,943	$35,548,472
1948	$7,003,285	$37,587,331
1949	$7,134,009	$37,039,061
1950	$12,756,975	$64,392,107
1951	$9,564,617	$43,607,002
1952	$11,298,960	$50,429,518
1953	$11,663,618	$52,424,464
1954	$12,468,322	$55,648,615
1955	$15,759,744	$70,338,889
1956	$18,268,302	$80,362,090
1957	$23,221,865	$99,122,531
1958	$17,600,754	$73,164,574
1959	$18,111,232	$74,314,007
1960	$17,072,739	$69,161,666
1961	$18,804,385	$75,693,291
1962	$21,811,575	$86,701,011
1963	$28,343,419	$110,593,187
1964	$48,676,712	$186,495,087
1965	$82,157,352	$307,367,085
1966	$90,221,237	$326,032,484
1967	$90,418,690	$315,100,093
1968	$88,461,436	$296,082,337
1969	$94,592,565	$303,074,578
1970	$104,790,555	$325,112,697
1971	$107,232,946	$323,221,546
1972	$120,170,980	$345,840,063
1973	$164,177,771	$438,732,267
1974	$216,583,092	$521,770,327
1975	$231,922,920	$504,293,197
1976	$238,583,178	$482,486,761
1977	$289,394,043	$542,150,800
1978	$339,719,973	$584,759,990
1979	$479,687,216	$756,082,990
1980	$374,129,479	$535,304,459
1981	$532,341,511	$677,138,402
1982	$498,290,740	$572,037,770
1983	$508,593,800	$551,976,851
1984	$617,969,438	$642,750,012
1985	$552,132,000	$552,132,000
	$6,220,504,385	$11,835,816,307

NA - DATA NOT AVAILABLE

Sources :Statistics Canada, 1984
IDBN 0-660-52817-7

:Chandra J.J., 1986
F.M.E. Open File Report No. 86-2

TABLE 2

NEW BRUNSWICK MINERAL PRODUCTION
1956 - 1985
CURRENT DOLLARS

YEAR	METALS	NON-METALS	FUELS	STRUCTURAL MATERIALS	TOTAL VALUE OF PRODUCTION
1956	$337,234	$744,262	$8,155,040	$9,021,766	$18,258,302
1957	$478,658	$951,178	$8,424,346	$9,056,683	$23,221,865
1958	$1,114,700	$944,321	$6,964,888	$8,576,845	$17,600,754
1959	NA	$941,330	$8,533,822	$8,636,080	$18,111,232
1960	NA	$1,101,722	$8,834,749	$7,136,268	$17,072,739
1961	NA	$1,379,335	$7,686,695	$9,738,355	$18,804,385
1962	$3,483,969	$1,571,082	$6,900,984	$9,855,540	$21,811,575
1963	$9,255,246	$1,224,450	$7,352,023	$10,511,700	$28,343,419
1964	$29,648,079	$1,099,685	$8,573,688	$9,355,260	$48,676,712
1965	$62,467,357	$1,742,662	$8,742,980	$9,210,353	$82,157,352
1966	$69,386,294	$1,894,992	$8,005,535	$10,934,416	$90,221,237
1967	$67,957,099	$2,427,150	$7,568,509	$12,465,932	$90,418,690
1968	$69,622,942	$2,915,246	$7,436,931	$8,476,317	$88,451,436
1969	$77,562,887	$3,603,831	$5,757,473	$7,668,374	$94,592,565
1970	$89,939,781	$2,758,381	$3,086,033	$8,979,360	$104,790,555
1971	$91,049,256	$2,902,648	$4,038,971	$9,242,071	$107,232,946
1972	$98,772,724	$3,820,526	$3,552,863	$14,024,867	$120,170,980
1973	$132,797,907	$4,243,694	$3,434,416	$23,701,754	$164,177,771
1974	$184,142,991	$5,742,863	$5,441,537	$21,255,701	$216,583,092
1975	$197,230,888	$6,252,923	$7,473,197	$20,965,912	$231,922,920
1976	$195,340,976	$7,163,466	$5,988,243	$30,090,493	$238,583,178
1977	$238,583,350	$10,037,550	$6,333,791	$34,349,352	$289,394,043
1978	$281,770,379	$11,467,716	$8,811,135	$37,670,743	$339,719,973
1979	$419,123,691	$11,658,369	$10,394,844	$38,510,412	$479,687,216
1980	$302,674,000	$13,192,293	$17,282,186	$40,981,000	$374,129,479
1981	$452,580,000	$16,666,976	$23,325,535	$39,769,000	$532,341,511
1982	$409,832,000	$20,587,126	$24,630,614	$43,241,000	$498,290,740
1983	$421,281,000	$19,220,800	$23,707,000	$36,385,000	$508,593,800
1984	$497,981,000	$47,973,438	$29,837,000	$42,178,000	$617,969,438
1985	$415,564,000	$60,934,000	$30,315,000	$45,619,000	$552,132,000
	>$4,819,978,308	$267,164,015	$322,590,028	$619,607,554	$6,033,461,905

NA - DATA NOT AVAILABLE

Sources :Statistics Canada, 1984
ISBN 0-660-52817-7
:Chandra J.J., 1986
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TABLE 3

NEW BRUNSWICK MINERAL PRODUCTION
1956 - 1985
CONSTANT DOLLARS

YEAR	METALS	NON-METALS	FUELS	STRUCTURAL MATERIALS	TOTAL VALUE OF PRODUCTION
1956	$1,484,302	$3,275,795	$35,893,593	$39,708,401	$80,362,090
1957	$2,043,152	$4,060,103	$35,959,321	$38,658,451	$99,122,531
1958	$4,633,696	$3,925,448	$28,952,343	$35,653,087	$73,164,574
1959	NA	$3,862,465	$35,015,978	$35,435,563	$74,314,007
1960	NA	$4,463,076	$35,789,568	$28,909,022	$69,161,666
1961	NA	$5,552,237	$30,941,253	$39,199,800	$75,693,291
1962	$13,848,777	$6,245,051	$27,431,411	$39,175,772	$86,701,011
1963	$36,113,044	$4,777,681	$28,686,859	$41,015,602	$110,593,187
1964	$113,590,685	$4,213,223	$32,848,371	$35,842,808	$186,495,087
1965	$233,702,876	$6,519,647	$32,709,237	$34,457,773	$307,367,085
1966	$250,741,251	$6,847,933	$28,929,602	$39,513,699	$326,032,484
1967	$236,823,694	$8,458,375	$26,375,497	$43,442,526	$315,100,093
1968	$233,055,836	$9,758,494	$24,894,383	$28,373,624	$296,082,337
1969	$248,511,490	$11,546,675	$18,446,943	$24,569,470	$303,074,578
1970	$279,038,171	$8,557,877	$9,574,417	$27,858,464	$325,112,697
1971	$274,440,667	$8,749,162	$12,174,266	$27,857,450	$323,221,546
1972	$284,258,022	$10,995,092	$10,224,784	$40,362,165	$345,840,063
1973	$354,875,847	$11,340,423	$9,177,790	$63,338,197	$438,732,257
1974	$443,618,880	$13,835,131	$13,109,207	$51,207,109	$521,770,327
1975	$428,858,843	$13,596,356	$16,249,720	$45,588,279	$504,293,197
1976	$395,038,056	$14,486,677	$12,110,024	$60,852,004	$482,486,761
1977	$446,962,048	$18,804,346	$11,865,724	$64,350,076	$542,150,800
1978	$485,011,353	$19,739,380	$15,166,607	$64,842,650	$584,759,990
1979	$660,622,604	$18,375,921	$16,384,353	$60,700,111	$756,082,990
1980	$433,065,959	$18,875,533	$24,727,352	$58,635,615	$535,304,459
1981	$575,681,760	$21,200,393	$29,670,081	$50,586,168	$677,138,402
1982	$470,487,136	$23,634,021	$28,275,945	$49,640,668	$572,037,770
1983	$457,216,269	$20,860,334	$32,241,007	$41,659,241	$551,976,851
1984	$517,950,038	$48,897,173	$21,933,464	$43,869,338	$642,750,012
1985	$415,564,000	$60,934,000	$30,315,000	$45,619,000	$552,132,000
	>$8,297,238,456	$417,388,023	$725,174,100	$1,300,922,134	$10,759,054,142

NA - DATA NOT AVAILABLE

Sources :Statistics Canada Ltd.
ISBN 0-660-52817-7
:Chandra J.J., 1986
F.M.E. Open File Report No. 86-2

TABLE 4

MINERAL PRODUCTION
NEW BRUNSWICK

1984

METALS	UNITS	QUANTITY	% OF TOTAL VALUE	VALUE
Antimony	Kg	------	0.18	1,139,000
Bismuth	Kg	152,000	0.29	1,796,000
Cadmium	Kg	89,000	0.07	432,000
Copper	Kg	7,800,000	2.39	14,757,000
Gold	g	781,000	1.89	11,718,000
Lead	kg	71,732,000	8.58	53,003,000
Silver	Kg	217,000	12.23	75,597,000
Tungsten	Kg	------	1.94	12,000,000
Zinc	Kg	232,792,000	53.00	327,539,000
TOTAL			80.57	497,981,000
NON METALLICS				
Peat	Tonne	151,000	1.78	10,974,000
Potash	Tonne	------	3.20	19,784,900
*Silica	Tonne	------	0.20	1,250,000
Salt	Tonne	------	1.21	7,457,538
Sulphur, in smelter gas	Tonne	114,000	1.38	8,507,000
TOTAL			7.76	47,973,438
FUELS				
Coal	Tonne	564,000	4.82	29,806,000
Natural Gas	M^3	1,000,000	0.003	18,000
Petroleum Crude	M^3	------	0.002	13,000
TOTAL			4.83	29,837,000
STRUCTURAL MATERIALS				
Clay Products	Tonne	------	0.54	3,313,000
Cement	Tonne	------	2.36	14,567,000
Lime	Tonne	------	0.83	5,514,000
Sand and Gravel	Tonne	7,401,000	1.42	8,803.000
Stone	Tonne	2,035,000	1.67	10,341,000
TOTAL			6.82	42,178,000
GRAND TOTAL 1984 (Final)				$617,969,438

*Formerly reported as Quartz

Mineral Development Branch
May 13, 1986

Table 5
Employment in the Metal Mines Sector
In New Brunswick:*
1971 and 1981 Censuses

CCDO	Description	1971 Emp.	1981 Emp.	%Δ
2111	Chemists	20	0	-
2112	Geologists	15	20	33
2117	Physical Science Techologists and Technicians	20	10	-50
2144	Electrical Engineers	0	20	-
2153	Mining Engineers	30	30	0
2161	Surveyors	20	20	0
2163	Draughtspersons	15	25	67
4131	Bookkeepers and Accounting Clerks	25	35	40
4143	Electronic Data Processing Operators	0	20	-
4155	Stock clerks	20	25	25
6115	Guards	25	25	0
6191	Janitors	25	25	0
7710	Foremen/women	105	150	43
7713	Rock and Soil Drilling Occupations	130	135	4
7715	Blasting Occupations	35	25	-28
7717	Cutting, Loading and Handling Occupations	255	295	16
7718	Labourers	140	210	50
8111	Crushing and Grinding Occupations	60	45	-25
8113	Mixing, Separating and Filtering Occupations	40	35	-13
8335	Welders and Flame Cutters	50	85	70
8584	Millwrights	140	230	64
8733	Electricians	55	25	-55
9175	Truck Drivers	95	60	37
9311	Crane Operators	30	40	33
	Sub-Total	1,350	1,615	20
	Other Occupations	490	620	26
	Total	1,840	2,235	21

* Those occupations with 20 (1 percent) or more of total employment for SIC 059 (miscellaneous metal mines).

Note: Emp.= employment; %Δ = percent change.

Source: Statistics Canada. Special computer runs provided by the Labour Market Outlook & Structural Analysis Directorate, Employment & Immigration Canada.

Table 6

Employment in the Mineral Fuels Sector
in New Brunswick:*
1971 and 1981 Censuses

CCDO	Description	1971 Emp.	1981 Emp.	%Δ
7710	Foremen/women	20	0	-
7713	Rock and Soil Drilling Occupations	10	10	0
7717	Cutting, Loading and Handling Occupations	45	65	44
7718	Labourers	35	40	14
8335	Welders and Flame Cutters	15	15	0
8589	Mechanics and Repairpersons	25	25	0
8711	Heavy Equipment Operators	10	10	0
9175	Truck Drivers	40	40	0
	Sub-Total	200	205	2
	Other Occupations	65	150	172
	Total	265	355	34

*Because of Statistics Canada's random rounding at intervals of five, and because of the small size of this sector, only those occupations with 10 or more SICs 061 (coal mines) and 064 (petroleum) are included in the table.

Note: Emp. = employment, %Δ = percent change.

Source: Statistics Canada. Special computer runs provided by the Labour Market Outlook and Structural Analysis Directorate, Employment and Immigration Canada.

Table 7

Employment in the Non-Metal Mines Sector
in New Brunswick:*
1971 and 1981 Censuses

CCDO	Description	1971 Emp.	1981 Emp.	%Δ
7710	Foremen/women	20	45	125
7717	Cutting, Loading and Handling Occupations	15	80	433
7718	Labourers	85	85	0
8584	Millwrights	10	15	50
8711	Heavy Equipment Operators	10	10	0
	Sub-Total	140	235	68
	Other Occupations	120	210	75
	Total	260	445	71

* Because of Statistics Canada's random rounding at intervals of five, and because of the small size of this sector, only those occupations with 10 or more for SICs 079 (peat extraction), 073 (gypsum mines), and 079 (miscellaneous non-metal mines) are included in the table.

Note: Emp. = employment; %Δ = percent change.

Source: Statistics Canada. Special computer runs provided by the Labour Market Outlook and Structural Analysis Directorate, Employment and Immigraiton Canada.

TABLE 8

NEW BRUNSWICK ZINC PRODUCTION
1956 - 1985

YEAR	KILOGRAMS	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1956	481,294	$157,464	0.86	$693,062
1957	0	$0	0.00	$0
1958	2,868,112	$688,000	4.23	$2,859,947
1959	0	$0	0.00	$0
1960	0	$0	0.00	$0
1961	0	$0	0.00	$0
1962	2,266,186	$605,000	2.77	$2,404,875
1963	9,629,020	$2,713,000	9.57	$10,585,855
1964	49,325,824	$15,409,000	31.66	$59,036,502
1965	112,124,930	$37,326,000	45.43	$139,644,031
1966	129,181,190	$43,003,000	47.67	$155,399,941
1967	137,311,070	$43,863,000	48.50	$152,858,169
1968	122,861,640	$38,191,000	43.17	$127,840,553
1969	138,101,240	$46,521,000	49.18	$149,053,284
1970	146,144,470	$51,325,000	48.97	$159,235,813
1971	146,525,500	$54,043,000	50.40	$162,896,411
1972	158,339,050	$66,572,000	55.39	$191,587,559
1973	174,692,700	$92,992,000	57.27	$248,502,522
1974	158,554,970	$121,922,000	55.73	$293,722,290
1975	149,212,170	$123,357,000	53.18	$268,227,461
1976	171,736,130	$142,432,000	55.83	$288,040,234
1977	161,811,820	$124,965,000	46.65	$234,109,431
1978	171,607,310	$131,494,000	42.93	$226,340,622
1979	264,584,420	$255,117,000	48.09	$402,115,415
1980	144,122,000	$138,533,000	34.33	$198,213,016
1981	228,608,000	$273,369,000	51.15	$347,725,368
1982	230,299,000	$247,110,000	49.57	$283,682,280
1983	225,054,000	$258,655,000	50.85	$280,718,272
1984	232,792,000	$327,539,000	53.00	$340,673,314
1985	230,974,000	$292,875,000	53.04	$292,875,000
	3,699,208,046	$2,930,776,464		$5,019,041,226

Sources :Statistics Canada, 1984
ISBN 0-660-52817-7
:Chandra J.J., 1986
F.M.E. Open File Report NO. 86-2

TABLE 9

NEW BRUNSWICK LEAD PRODUCTION
1956 - 1985

YEAR	KILOGRAMS	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1956	430,507	$147,204	0.80	$647,904
1957	0	$0	0.00	$0
1958	85,276	$21,000	0.13	$87,295
1959	NA	NA	NA	NA
1960	NA	NA	NA	NA
1961	NA	NA	NA	NA
1962	1,705,082	$373,000	1.71	$1,482,675
1963	1,617,538	$392,000	1.38	$1,529,545
1964	19,700,755	$5,837,000	11.99	$22,363,298
1965	39,602,908	$13,533,000	16.47	$50,629,660
1966	47,051,474	$15,497,000	17.18	$56,001,509
1967	42,653,368	$13,165,000	14.56	$45,878,709
1968	49,306,320	$14,609,000	16.52	$48,902,167
1969	46,350,662	$15,501,000	16.39	$49,665,204
1970	56,858,760	$19,830,000	18.92	$61,522,575
1971	59,335,416	$17,659,000	16.47	$53,227,758
1972	41,268,981	$14,036,000	11.68	$40,394,204
1973	39,927,232	$14,207,000	8.75	$37,965,366
1974	45,623,088	$20,825,000	9.52	$50,169,508
1975	59,093,647	$26,399,000	11.38	$57,401,986
1976	61,687,785	$30,808,000	12.08	$62,303,018
1977	61,142,558	$41,991,000	15.68	$78,665,939
1978	70,878,175	$57,539,000	18.79	$99,041,881
1979	75,674,088	$99,319,000	18.72	$156,546,608
1980	48,673,000	$53,170,000	13.18	$76,075,636
1981	68,373,000	$67,108,000	12.60	$85,361,376
1982	81,475,000	$59,069,000	11.85	$67,811,212
1983	70,346,000	$41,518,000	8.16	$45,059,485
1984	71,732,000	$53,003,000	8.58	$55,128,420
1985	73,398,000	$42,362,000	7.67	$42,362,000
	>1,233,990,620	>$737,918,204		>$1,346,224,936

NA - DATA NOT AVAILABLE

Sources :Statistics Canada , 1984
ISBN 0-660-52817-7
:Chandra J.J., 1986
F.M.E. Open File Report No. 86-2

TABLE 10

NEW BRUNSWICK COPPER PRODUCTION
1956 - 1985

YEAR	KILOGRAMS	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1956	5,775	$5,272	0.03	$23,204
1957	0	$0	0.00	$0
1958	297,562	$167,000	1.03	$694,202
1959	0	$0	0.00	$0
1960	0	$0	0.00	$0
1961	0	$0	0.00	$0
1962	3,333,053	$2,278,000	10.44	$9,055,050
1963	8,132,141	$5,647,000	19.92	$22,034,029
1964	8,433,331	$6,210,000	12.75	$23,792,373
1965	9,145,937	$7,581,000	9.23	$28,362,037
1966	6,431,594	$6,366,000	7.06	$23,004,814
1967	5,249,059	$5,505,000	6.09	$19,184,375
1968	7,498,008	$7,951,000	8.99	$26,615,177
1969	6,160,342	$6,985,000	7.38	$22,379,940
1970	7,277,558	$9,314,000	8.89	$28,896,685
1971	9,313,315	$10,841,000	10.11	$32,676,942
1972	9,353,686	$10,052,000	8.36	$28,928,651
1973	9,353,232	$13,155,000	8.10	$35,154,107
1974	10,235,030	$17,580,000	8.04	$42,351,978
1975	11,212,084	$15,758,000	6.79	$34,264,195
1976	9,677,556	$14,587,000	5.72	$29,499,290
1977	13,226,976	$20,257,000	7.56	$37,949,464
1978	10,710,856	$17,570,000	5.74	$30,243,241
1979	10,913,616	$25,691,000	4.84	$40,494,154
1980	9,651,000	$25,286,000	6.27	$36,179,209
1981	12,034,000	$26,629,000	5.00	$33,872,088
1982	13,125,000	$25,610,000	5.14	$29,400,280
1983	11,369,000	$23,754,000	4.67	$25,780,216
1984	7,800,000	$14,757,000	2.39	$15,348,756
1985	6,585,000	$13,031,000	2.36	$13,031,000
	216,524,711	$332,567,272		$669,215,458

Sources :Statistics Canada, 1984
ISBN 0-660-52817-7
:Chandra J.J., 1986
F.M.E. Open File Report No. 86-2

TABLE 11

NEW BRUNSWICK SILVER PRODUCTION
1956 - 1985

YEAR	KILOGRAMS	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1956	566	$16,306	0.09	$71,769
1957	0	$0	0.00	$0
1958	1,586	$44,000	0.27	$182,904
1959	0	$0	0.00	$0
1960	0	$0	0.00	$0
1961	0	$0	0.00	$0
1962	5,567	$208,000	0.95	$826,800
1963	10,015	$460,000	1.62	$1,794,874
1964	45,690	$2,057,000	4.23	$7,880,984
1965	85,378	$3,843,000	4.68	$14,377,432
1966	96,699	$4,349,000	4.82	$15,715,981
1967	93,838	$5,226,000	5.78	$18,212,087
1968	113,650	$8,452,000	9.55	$28,292,225
1969	126,247	$7,834,000	8.28	$25,100,136
1970	142,390	$8,469,000	8.08	$26,275,073
1971	157,319	$7,890,000	7.36	$23,782,038
1972	121,488	$6,524,000	5.43	$18,775,420
1973	111,007	$9,014,000	5.55	$24,088,112
1974	136,293	$20,222,000	9.24	$48,716,820
1975	157,039	$22,752,000	9.81	$49,471,949
1976	156,106	$21,497,000	8.43	$43,473,383
1977	173,182	$27,370,000	10.22	$51,274,958
1978	178,811	$35,429,000	11.57	$60,983,938
1979	196,260	$74,906,000	14.12	$118,066,837
1980	124,000	$97,649,000	24.20	$139,716,189
1981	193,000	$78,215,000	14.69	$99,489,480
1982	230,000	$72,719,000	14.59	$83,481,412
1983	198,000	$89,959,000	17.69	$97,632,503
1984	217,000	$75,597,000	12.23	$78,628,440
1985	187,000	$52,215,000	9.46	$52,215,000
	$3,258,131	$732,916,306		$1,128,526,743

Sources : Statistics Canada, 1984
ISBN 0-660-52817-7
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TABLE 12

NEW BRUNSWICK GOLD PRODUCTION
1958 - 1985

YEAR	GRAMS	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1958	NA	$2,000	0.01	$8,314
1959	0	$0	0.00	$0
1960	0	$0	0.00	$0
1961	0	$0	0.00	$0
1962	155,515	$21,000	0.10	$83,475
1963	31,103	$43,000	0.15	$167,782
1964	62,206	$61,000	0.13	$233,709
1965	62,206	$63,000	0.08	$235,696
1966	62,206	$74,000	0.08	$267,414
1967	31,103	$54,000	0.06	$188,185
1968	62,206	$83,000	0.09	$277,834
1969	31,103	$53,000	0.06	$169,812
1970	155,515	$187,000	0.18	$580,168
1971	124,412	$150,000	0.14	$452,130
1972	93,309	$185,000	0.15	$532,412
1973	155,515	$507,000	0.31	$1,354,856
1974	124,412	$700,000	0.32	$1,686,370
1975	93,309	$555,000	0.24	$1,206,792
1976	124,412	$460,000	0.18	$930,258
1977	217,721	$1,157,000	0.43	$2,167,524
1978	217,721	$1,551,000	0.51	$2,669,736
1979	186,618	$2,061,000	0.31	$3,248,548
1980	275,000	$5,803,000	1.44	$8,302,932
1981	196,000	$3,482,000	0.65	$4,429,104
1982	205,000	$3,065,000	0.61	$3,518,620
1983	346,000	$5,790,000	1.14	$6,283,887
1984	781,000	$11,718,000	1.89	$12,187,892
1985	252,000	$3,506,000	0.63	$3,506,000
	>4,045,592	$41,331,000		$54,689,449

NA - DATA NOT AVAILABLE

Sources :Statistics Canada, 1984
ISBN 0-660-52817-7
:Chandra J.J., 1986
F.M.E. Open File Report No. 86-2

TABLE 13

NEW BRUNSWICK COAL PRODUCTION
1891 - 1985

YEAR	TONNES	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1891	4,920	$11,030	NA	NA
1896	6,805	$11,250	NA	NA
1901	15,998	$51,857	11.08	NA
1906	30,921	$68,152	10.54	NA
1911	50,617	$111,562	18.19	NA
1916	130,254	$386,016	34.51	$3,664,295
1921	169,865	$920,666	48.33	$5,797,526
1926	157,088	$710,245	39.21	$4,857,152
1931	165,317	$743,196	34.11	$5,694,888
1936	334,499	$1,190,032	45.94	$10,091,471
1941	474,903	$2,021,394	54.58	$15,124,878
1946	336,347	$2,099,373	43.46	$14,054,882
1951	592,957	$4,822,869	50.16	$21,988,424
1956	896,793	$7,990,446	43.15	$35,169,149
1958	717,000	$6,621,000	40.68	$27,522,835
1959	910,000	$8,347,000	46.18	$34,249,410
1960	933,000	$8,663,000	50.74	$35,093,813
1961	806,000	$7,527,000	39.96	$30,298,433
1962	740,000	$6,752,000	30.96	$26,839,200
1963	804,000	$7,232,000	25.52	$28,218,541
1964	907,000	$8,455,000	17.37	$32,393,642
1965	904,000	$8,638,000	10.51	$32,316,486
1966	815,000	$7,892,000	8.75	$28,519,320
1967	760,000	$7,490,000	8.28	$18,611,901
1968	723,000	$7,330,000	8.29	$24,536,442
1969	637,000	$5,650,000	5.97	$18,102,600
1970	359,000	$2,964,000	2 83	$9,195,210
1971	469,000	$3,935,000	3.67	$11,860,877
1972	390,000	$3,484,000	2.90	$10,026,604
1973	358,000	$3,390,000	2.09	$9,059,097
1974	354,000	$5,000,000	2.29	$12,045,500
1975	423,000	$7,366,000	3.18	$16,016,630
1976	290,000	$6,300,000	2.89	$12,740,490
1977	290,000	$6,450,000	2.41	$12,083,430
1978	281,000	$8,450,000	2.76	$14,544,985
1979	305,000	$10,100,000	1.90	$15,919,620
1980	440,000	$17,300,000	4.29	$24,752,840
1981	524,000	$23,255,000	4.37	$29,580,360
1982	498,000	$24,588,000	4.93	$28,227,024
1983	565,000	$29,666,000	5.83	$32,196,510
1984	564,000	$29,806,000	4.82	$31,001,221
1985	555,000	$29,800,000	5.40	$29,800,000
	>19,688,284	>$323,589,088		>$752,196,287

NA - DATA NOT AVAILBLE
DATA IS FOR SELECTED YEARS ONLY FROM 1891 TO 1958

Sources :Statistics Canada, 1984
ISBN 0-660-52817-7
XIII :Chandra J.J., 1986
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TABLE 14

NEW BRUNSWICK SILICA (QUARTZ) PRODUCTION
1978 - 1985

YEAR	TONNES	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1978	NA	$105,000	0.03	$180,737
1979	28,950	$324,000	0.06	$510,689
1980	NA	$475,000	0.12	$679,630
1981	NA	$1,000,000	0.19	$1,272,000
1982	NA	$1,400,000	0.28	$1,607,200
1983	NA	$1,400,000	0.28	$1,519,420
1984	NA	$1,250,000	0.20	$1,300,125
1985	NA	$1,200,000	0.22	$1,200,000
	>28,950	$7,154,000		$8,269,800

NA - DATA NOT AVAILABLE

Sources :Statistics Canada, 1984
ISBN 0-660-52817-7
:Chandra J.J., 1986
F.M.E. Open File Report No. 86-2

TABLE 15

NEW BRUNSWICK PEAT MOSS PRODUCTION
1946 - 1985

YEAR	TONNES	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1946	2,039	$54,892	1.14	$367,491
1947	NA	NA	NA	NA
1948	NA	NA	NA	NA
1949	NA	NA	NA	NA
1950	NA	NA	NA	NA
1951	4,162	$161,934	1.68	$738,289
1952	NA	NA	NA	NA
1953	NA	NA	NA	NA
1954	NA	NA	NA	NA
1955	NA	NA	NA	NA
1956	12,178	$520,224	2.81	$2,289,714
1957	NA	NA	NA	NA
1958	19,056	$701,000	4.31	$2,913,987
1959	22,686	$809,000	4.48	$3,319,489
1960	19,056	$833,000	4.88	$3,374,483
1961	29,946	$1,240,000	6.58	$4,991,372
1962	31,760	$1,407,000	6.45	$5,592,825
1963	29,038	$1,067,000	3.76	$4,163,327
1964	24,501	$867,000	1.78	$3,321,737
1965	51,724	$1,532,000	1.86	$5,731,518
1966	60,799	$1,480,000	1.64	$5,348,276
1967	70,780	$2,017,000	2.23	$7,029,043
1968	69,873	$2,211,000	2.50	$7,401,101
1969	79,855	$2,573,000	2.72	$8,243,892
1970	65,336	$2,398,000	2.29	$7,439,795
1971	61,706	$2,476,000	2.31	$7,463,159
1972	82,577	$3,368,000	2.80	$9,692,767
1973	66,243	$3,456,000	2.13	$9,235,469
1974	90,744	$3,500,000	1.60	$8,431,850
1975	81,670	$5,458,000	2.35	$11,867,875
1976	86,207	$5,800,000	2.27	$11,729,340
1977	96,189	$6,784,000	2.53	$12,709,146
1978	107,078	$8,732,000	2.85	$15,030,392
1979	118,875	$10,049,000	1.89	$15,839,234
1980	124,000	$9,707,000	2.41	$13,888,776
1981	94,000	$9,985,000	1.88	$12,700,920
1982	155,000	$15,948,000	3.20	$18,308,304
1983	151,000	$9,792,000	1.93	$10,627,258
1984	151,000	$10,974,000	1.78	$11,414,057
1985	201,000	$13,154,000	2.38	$13,154,000
	>2,260,078	>$139,055,050		>$254,358,887

NA - DATA NOT AVAILABLE

Sources: Statistics Canada, 1984 : Chandra J.J., 1986
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TABLE 16

NEW BRUNSWICK SULPHUR IN-SMELTER GAS PRODUCTION
1958 - 1985

YEAR	TONNES	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1958	NA	$23,000	0.14	$95,609
1959	0	$0	0.00	$0
1960	0	$0	0.00	$0
1961	0	$0	0.00	$0
1962	0	$0	0.00	$0
1963	NA	$16,000	0.06	$62,430
1964	NA	$17,000	0.03	$65,132
1965	0	$0	0.00	$0
1966	0	$0	0.00	$0
1967	20,871	$226,000	0.25	$787,587
1968	32,668	$531,000	0.60	$1,777,469
1969	60,799	$896,000	0.95	$2,870,784
1970	22,686	$231,000	0.22	$716,678
1971	19,964	$168,000	0.16	$506,386
1972	28,131	$232,000	0.19	$667,673
1973	29,946	$440,000	0.27	$1,175,812
1974	36,298	$635,000	0.29	$1,529,779
1975	42,650	$586,000	0.25	$1,274,198
1976	39,020	$781,000	0.31	$1,579,416
1977	46,279	$1,211,000	0.45	$2,268,687
1978	57,169	$1,155,000	0.38	$1,988,102
1979	60,799	$1,264,000	0.24	$1,992,317
1980	52,000	$1,341,000	0.33	$1,918,703
1981	85,000	$5,478,000	1.03	$6,968,016
1982	80,000	$2,328,000	0.47	$2,672,544
1983	88,000	$3,825,000	0.75	$4,151,273
1984	114,000	$8,507,000	1.38	$8,848,131
1985	95,000	$11,630,000	2.11	$11,630,000
	>1,011,280	$41,521,000		$55,546,725

NA - DATA NOT AVAILABLE

Sources :Statistics Canada, 1984
ISBN 0-660-52817-7
:Chandra J.J., 1986
F.M.E. Open File Report No. 86-2

TABLE 17

NEW BRUNSWICK LIMESTONE PRODUCTION
1886 - 1985

YEAR	TONNES	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1886	10,048	$58,120	NA	NA
1891	2,141	$15,285	NA	NA
1906	12,877	$94,290	14.59	NA
1911	19,491	$132,897	21.67	NA
1916	13,470	$104,635	9.35	$993,258
1921	17,863	$203,084	10.66	$1,278,840
1926	15,156	$196,477	10.85	$1,343,647
1931	10,200	$127,054	5.83	$973,577
1936	16,190	$128,016	4.94	$1,085,576
1941	19,738	$180,133	4.86	$1,347,827
1946	19,886	$286,401	5.93	$1,917,397
1951	19,014	$369,681	3.84	$1,685,450
1956	16,725	$408,338	5.27	$1,797,259
1958	16,334	$394,000	2.42	$1,637,819
1959	16,334	$417,000	2.31	$1,711,034
1960	15,426	$379,000	2.22	$1,535,329
1961	15,426	$308,000	1.64	$1,239,792
1962	15,426	$391,000	1.79	$1,554,225
1963	15,426	$383,000	1.35	$1,494,428
1964	4,537	$126,000	0.26	$482,744
1965	3,630	$101,000	0.12	$377,861
1966	3,630	$100,000	0.11	$361,370
1967	2,722	$77,000	0.09	$191,337
1968	2,722	$75,000	0.08	$251,055
1969	0	$0	0.00	$0
1970	0	$0	0.00	$0
1971	NA	$194,000	0.18	$584,755
1972	NA	$651,000	0.54	$1,873,513
1973	NA	$995,000	0.61	$2,658,939
1974	NA	$1,000,000	0.46	$2,409,100
1975	NA	$1,303,000	0.56	$2,833,243
1976	NA	$1,440,000	0.56	$2,912,112
1977	NA	$2,137,000	0.80	$4,003,456
1978	NA	$2,166,000	0.71	$3,728,336
1979	NA	$1,905,000	0.36	$3,002,661
1980	NA	$3,415,000	0.85	$4,886,182
1981	NA	$2,935,000	0.55	$3,733,320
1982	NA	$3,961,000	0.79	$4,547,228
1983	NA	$4,080,000	0.80	$4,428,024
1984	NA	$5,154,000	0.83	$5,360,675
1985	NA	$5,340,000	0.97	$5,340,000
	>304,412	>$41,731,411		>$75,561,369

NA - DATA NOT AVAILABLE
DATA IS FOR SELECTED YEARS ONLY FROM 1886 TO 1958

Sources :Statistics Canada, 1984
ISBN 0-660-52817-7
:Chandra J.J., 1986
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TABLE 18

NEW BRUNSWICK CEMENT PRODUCTION
1956 - 1985

YEAR	TONNES	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1956	150,165	$2,439,676	13.17	$10,737,990
1957	0	$0	0.00	$0
1958	163,339	$2,934,000	18.03	$12,196,345
1959	155,172	$2,606,000	14.42	$10,692,939
1960	147,912	$2,544,000	14.90	$10,305,744
1961	156,172	$2,754,000	14.62	$11,085,676
1962	154,265	$2,775,000	12.72	$11,030,625
1963	147,005	$2,659,000	9.38	$10,375,152
1964	157,895	$2,908,000	5.97	$11,141,420
1965	160,617	$2,940,000	3.58	$10,999,128
1966	221,416	$4,141,000	4.60	$14,964,332
1967	208,711	$3,904,000	4.32	$13,605,050
1968	NA	$2,696,000	3.05	$9,024,590
1969	NA	$3,539,000	3.74	$11,338,956
1970	NA	$3,297,000	3.15	$10,228,943
1971	NA	$2,829,000	2.64	$8,527,172
1972	NA	$4,564,000	3.80	$13,134,736
1973	NA	$5,203,000	3.20	$13,903,977
1974	NA	$5,672,000	2.60	$13,664,415
1975	NA	$5,839,000	2.52	$12,696,322
1976	NA	$8,967,000	3.52	$18,133,964
1977	NA	$10,367,000	3.87	$19,421,538
1978	NA	$15,794,000	5.16	$27,186,212
1979	NA	$15,794,000	2.98	$24,894,503
1980	NA	$14,002,000	3.47	$20,034,062
1981	NA	$15,304,000	2.87	$19,466,688
1982	NA	$17,165,000	3.44	$19,705,420
1983	NA	$8,965,000	1.76	$9,729,715
1984	NA	$14,567,000	2.36	$15,151,137
1985	NA	$15,134,000	2.74	$15,134,000
	>1,821,669	$202,302,676		$408,510,748

NA - DATA NOT AVAILABLE

Sources :Statistics Canada, 1984
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TABLE 19

NEW BRUNSWICK SAND AND GRAVEL PRODUCTION
1958 - 1985

YEAR	TONNES	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1958	3,644,283	$1,750,000	10.75	$7,274,575
1959	4,621,597	$2,896,000	16.02	$11,882,867
1960	5,611,615	$2,091,000	12.25	$8,470,641
1961	4,549,909	$2,796,000	14.85	$11,254,739
1962	4,653,358	$2,791,000	12.80	$11,094,225
1963	4,009,074	$2,720,000	9.60	$10,613,168
1964	4,264,973	$2,641,000	5.47	$10,118,463
1965	4,146,098	$2,639,000	3.21	$9,873,027
1966	4,870,236	$2,990,000	3.32	$10,804,963
1967	6,901,089	$4,383,000	4.85	$15,274,317
1968	5,773,140	$2,140,000	2.42	$7,163,436
1969	3,624,319	$1,391,000	1.47	$4,456,764
1970	6,245,917	$1,969,000	1.88	$6,108,823
1971	4,523,593	$2,593,000	2.42	$7,815,821
1972	6,861,162	$4,585,000	3.82	$13,195,172
1973	8,669,691	$10,550,000	6.50	$28,192,765
1974	8,257,713	$10,500,000	4.80	$25,295,550
1975	3,834,846	$4,239,000	1.83	$9,217,282
1976	3,539,020	$4,100,000	1.61	$8,291,430
1977	4,990,926	$5,200,000	1.94	$9,741,680
1978	5,444,646	$6,600,000	2.15	$11,360,580
1979	7,259,528	$11,600,000	2.19	$18,283,920
1980	8,819,000	$14,800,000	3.67	$21,175,840
1981	6,282,000	$9,450,000	1.77	$12,020,400
1982	6,206,000	$8,359,000	1.68	$9,596,132
1983	5,668,000	$10,830,000	2.13	$11,753,799
1984	7,401,000	$8,803,000	1.42	$9,156,000
1985	7,600,000	$9,700,000	1.76	$9,700,000
	158,272,733	$155,106,000		$329,186,377

Sources :Statistics Canada, 1984
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TABLE 20

NEW BRUNSWICK STONE PRODUCTION
1958 - 1985

YEAR	TONNES	CURRENT DOLLARS	% OF TOTAL MINERAL VALUE	CONSTANT 1985 DOLLARS
1958	1,906,534	$1,910,000	11.74	$7,939,679
1959	1,922,868	$1,904,000	10.53	$7,812,493
1960	1,709,619	$1,411,000	8.26	$5,715,961
1961	2,684,211	$3,156,000	16.76	$12,703,847
1962	2,677,858	$3,077,000	14.11	$12,231,075
1963	4,008,167	$4,127,000	14.56	$16,103,141
1964	2,774,955	$2,982,000	6.13	$11,424,937
1965	1,941,924	$2,862,000	3.48	$10,707,314
1966	3,215,971	$3,084,000	3.42	$11,144,651
1967	2,962,795	$3,535,000	3.91	$12,319,122
1968	1,940,109	$2,935,000	3.32	$9,824,619
1969	1,097,096	$2,153,000	2.28	$6,898,212
1970	1,198,730	$2,773,000	2.65	$8,603,233
1971	1,298,548	$2,900,000	2.70	$8,741,180
1972	1,725,045	$3,557,000	2.96	$10,236,690
1973	2,156,080	$4,372,000	2.69	$11,683,296
1974	2,177,858	$4,600,000	2.10	$11,081,860
1975	3,241,379	$8,248,000	3.56	$17,934,451
1976	2,540,835	$7,000,000	2.74	$14,156,100
1977	3,085,299	$9,200,000	3.43	$17,235,280
1978	3,176,044	$10,150,000	3.31	$17,471,195
1979	3,176,044	$10,850,000	2.05	$17,101,770
1980	3,266,000	$10,800,000	2.68	$15,452,640
1981	2,688,000	$10,655,000	2.00	$13,553,160
1982	2,261,000	$11,556,000	2.32	$13,266,288
1983	2,087,000	$11,310,000	2.22	$12,274,743
1984	2,035,000	$10,341,000	1.67	$10,755,674
1985	2,060,000	$11,120,000	2.01	$11,120,000
	67,014,969	$162,568,000		$335,492,610

Sources :Statistics Canada, 1984
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Table 21

SUMMARY OF PROSPECTING LICENCES, CLAIMS, MINING LICENCES, MINING LEASES
FROM 1953 TO PRESENT

*claim equivalents

Does not include mining licences and leases for coal and potash issued by O.I.C.

YEAR	PROSP. LICENCES SOLD	CLAIMS				MINING LICENCES*				MINING* LEASES IN EFFECT	TOTAL* IN EFFECT
		RECORDED	EXPIRED	RENEWED	IN EFFECT	CONVERTED	EXPIRED	RENEWED	IN EFFECT		
1953		41 606									
1954	3681	18 975		20 744	39 719						
1955	2145	17 464	12 722	24 160	41 624						
1956	1714	22 041	8 924	21 179	43 220				8 354		51 574
1957	1850	6 261	21 375	21 073	27 334	220	1 795	6 551	6 771		34 105
1958	770	2 643	20 628	6 475	9 118	453	2 095	4 823	5 276		14 394
1959	351	4 558	6 417	2 671	7 229	285	1 364	3 347	3 632		10 861
1960	506	4 839	4 776	1 991	6 830	337	745	2 824	3 161		9 991
1961	424	1 641	4 979	1 733	3 374	21	182	2 806	2 827		6 201
1962	319	2 996	1 578	1 687	4 683	122	79	2 283	2 405		7 088
1963	406	1 602	1 959	2 321	3 923	238	85	2 207	2 445		6 368
1964	194	4 428	2 262	1 458	5 886	197	42	2 337	2 534	126	8 546
1965	424	6 398	2 975	2 522	8 920	167	79	2 407	2 574	135	11 629
1966	443	9 754	4 890	3 596	13 350	74	87	2 431	2 505	55	15 910
1967	520	5 356	7 607	5 066	10 422	151	117	2 091	2 242	341	13 005
1968	392	5 693	7 169	2 961	8 654	172	147	1 989	2 161	341	11 156
1969	574	7 447	4 579	4 245	11 692	98	177	2 103	2 201	341	14 234
1970	512	5 018	5 842	5 163	10 181	165	45	2 107	2 272	341	12 794
1971	349	3 978	5 550	4 365	8 352	265	183	2 000	2 265	397	11 014
1972	298	2 888	4 537	3 784	6 672	156	200	1 964	2 120	397	9 189
1973	227	3 489	3 419	3 238	6 727	44	48	1 939	1 983	397	9 107
1974	244	3 726	2 453	3 936	7 662	154	125	1 974	2 128	397	10 187
1975	281	4 690	2 795	4 786	9 476	110	84	2 048	2 158	397	12 031
1976	368	7 254	1 746	7 388	14 642	100	8	2 154	2 254	397	17 293
1977	369	2 952	3 745	9 773	12 725	891	78	2 158	3 049	397	16 171
1978	369	6 717	5 815	6 246	12 963	836	128	2 917	3 753	397	17 173
1979	460	8 209	3 977	8 222	16 431	426	82	3 773	4 199	397	21 027
1980	483	7 274	4 713	11 192	18 466	505	34	4 120	4 625	397	21 754
1981	466	5 115	4 345	13 599	18 714	397	48	4 608	5 005	397	24 116
1982	346	1 801	6 668	12 332	14 133	889	194	4 811	5 700	397	20 230
1983	355	4 360	5 827	7 113	11 473	488	709	4 991	5 479	397	17 349
1934	338	2 703	5 601	4 992	7 695	480	310	5 168	5 648	403	13 746
1985	332	5 080	3 399	4 116	9 196	297	396	5 252	5 549	437	15 182

TABLE 22

NEW BRUNSWICK MINERAL EXPLORATION EXPENDITURE (REPORTED)
1951 - 1985
(REPRESENTS 30-40% OF ACTUAL)
DOES NOT INCLUDE POTASH, COAL AND OIL & GAS

YEAR	CURRENT DOLLARS	CONSTANT 1985 DOLLARS
1951	$17,154	$78,209
1952	$23,196	$103,528
1953	$431,037	$1,937,382
1954	$2,089,586	$9,326,240
1955	$2,818,755	$12,580,667
1956	$5,010,610	$22,053,699
1957	$2,883,152	$12,306,734
1958	$591,513	$2,458,860
1959	$689,190	$2,827,884
1960	$721,308	$2,922,019
1961	$464,532	$1,869,881
1962	$387,467	$1,540,181
1963	$263,406	$1,027,784
1964	$344,392	$1,319,469
1965	$319,717	$1,196,125
1966	$1,102,149	$3,982,836
1967	$541,554	$1,887,262
1968	$1,062,864	$3,557,831
1969	$1,174,655	$3,763,595
1970	$1,292,055	$4,008,601
1971	$1,675,459	$5,050,169
1972	$1,364,434	$3,926,705
1973	$798,492	$2,133,810
1974	$1,553,016	$3,741,371
1975	$2,804,135	$6,097,311
1976	$3,329,179	$6,732,599
1977	$2,611,357	$4,892,116
1978	$2,005,727	$3,452,458
1979	$3,051,397	$4,809,612
1980	$4,237,467	$6,062,968
1981	$5,122,935	$6,516,373
1982	$4,830,443	$5,545,349
1983	$2,224,145	$2,413,865
1984	$2,038,140	$2,119,869
1985	$3,350,000	$3,350,000
	$63,224,618	$157,593,361

Sources :Statistics Canada, 1984
ISBN 0-660-52817-7
:Chandra J.J., 1986
F.M.E. Open File Report No. 86-2

Table 23

Projection of Employment for the Metal Mines Sector in New Brunswick

CCDO	Description	Reference Scenario 1990	Reference Scenario 1995	High Growth Scenario 1990	High Growth Scenario 1995
2111	Chemists	10	10	15	15
2112	Geologists	20	20	30	30
2117	Physical Science Technologists and Technicians	10	10	20	20
2144	Electrical Engineers	25	25	30	30
2153	Mining Engineers	30	30	35	35
2161	Surveyors	20	20	25	20
2163	Draughtspersons	20	20	25	20
4131	Bookkeepers and Accounting Clerks	30	25	35	35
4143	Electronic Data Processing Operators	20	20	30	30
4155	Stock Clerks	25	20	25	20
6115	Guards	25	25	35	35
6191	Janitors	25	25	40	40
7710	Foremen/Women	130	120	140	135
7713	Rock and Soil Drilling Occup.	115	105	140	135
7715	Blasting Occup.	20	20	25	20
7717	Cutting, Loading and Handling Occupations	275	260	295	285
7718	Labourers	190	170	200	180
8111	Crushing and Grinding Occup.	40	35	45	40
8113	Mixing, Separating and Filtering Occupations	30	25	35	35
8335	Welders and Flame Cutters	80	75	90	90
8584	Millwrights	210	200	220	220
8733	Electricians	25	20	35	35
9175	Truck Drivers	55	50	70	70
9311	Crane Operators	35	30	40	40
	Sub-Totals	1,465	1,325	1,680	1,615
	Other Occupations	510	470	1,080	1,000
	Total	1,975	1,795	2,760	2,615

Table 24

Projection of Employment for the Mineral Fuels Sector in New Brunswick

CCDO	Description	1990	1995.
7710	Foremen/Women	10	10
7713	Rock and Soil Drilling Occupations	10	10
7717	Cutting, Loading, and Handling Occupations	60	55
7718	Labourers	35	30
8335	Welders and Flame Cutters	15	15
8589	Mechanics and Repairpersons	25	25
8711	Heavy Equipment Operators	10	10
9175	Truck Drivers	40	40
	Sub-Total	205	195
	Other Occupations	140	130
	Total	345	325

Table 25

Projection of Employment for the Non-Metal Mines Sector in New Brunswick

CCDO	Description	Reference Scenario 1990	Reference Scenario 1995	High Growth Scenario 1990	High Growth Scenario 1995
7710	Foremen/Women	50	50	70	80
7717	Cutting, Loading, and Handling Occupations	85	80	110	130
7718	Labourers	90	85	120	130
8584	Millwrights	20	20	30	35
8711	Heavy Equipment Operators	15	15	25	30
	Sub-Total	250	235	355	405
	Other Occupations	230	230	440	455
	Total	480	465	795	860

APPENDIX II

Figure 1

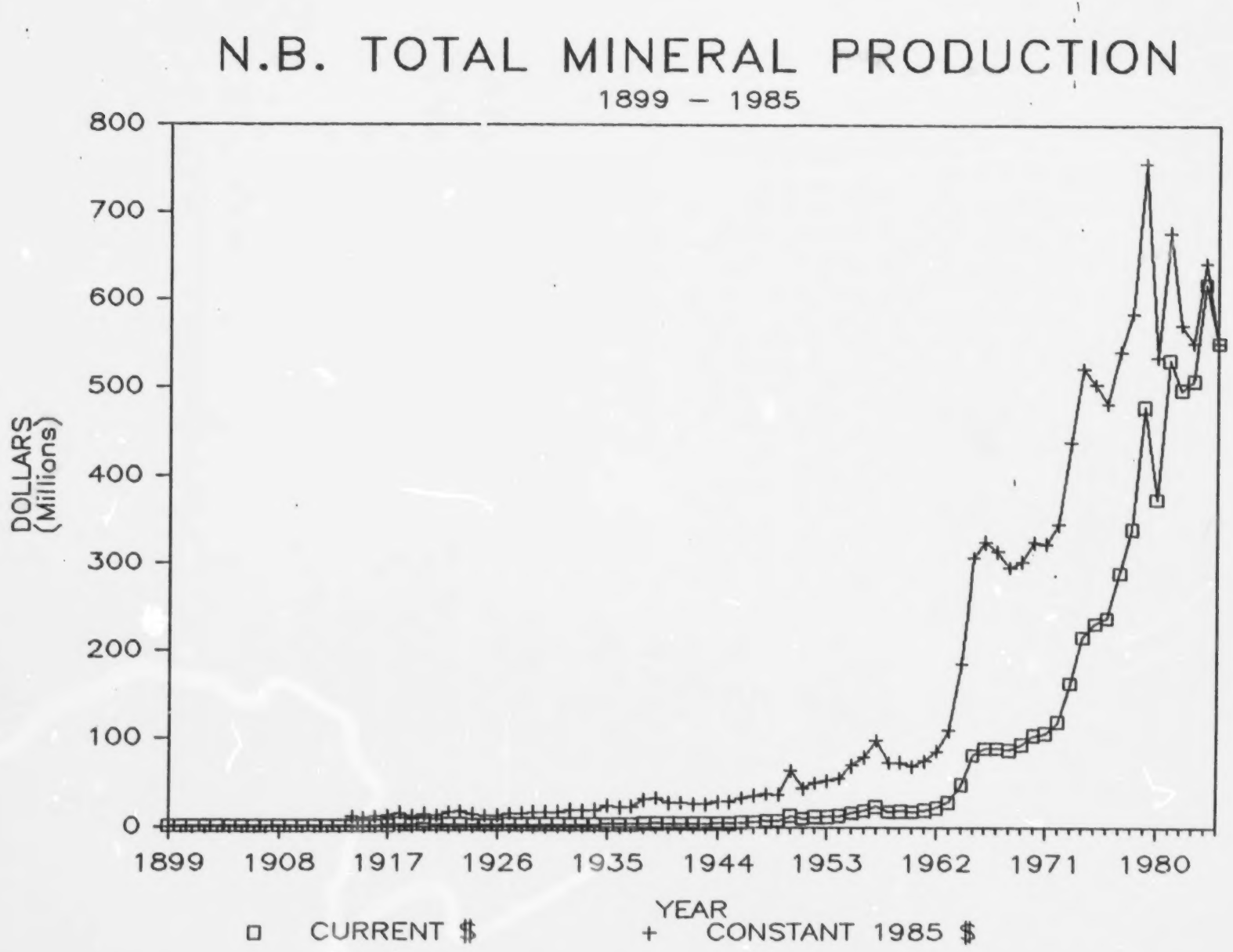

N.B. TOTAL MINERAL PRODUCTION
1899 – 1985
DOLLARS (Millions)
800
700
600
500
400
300
200
100
0
1899
1908
1917
1926
1935
1944
1953
1962
1971
1980
YEAR
CURRENT $
CONSTANT 1985 $

Figure 2

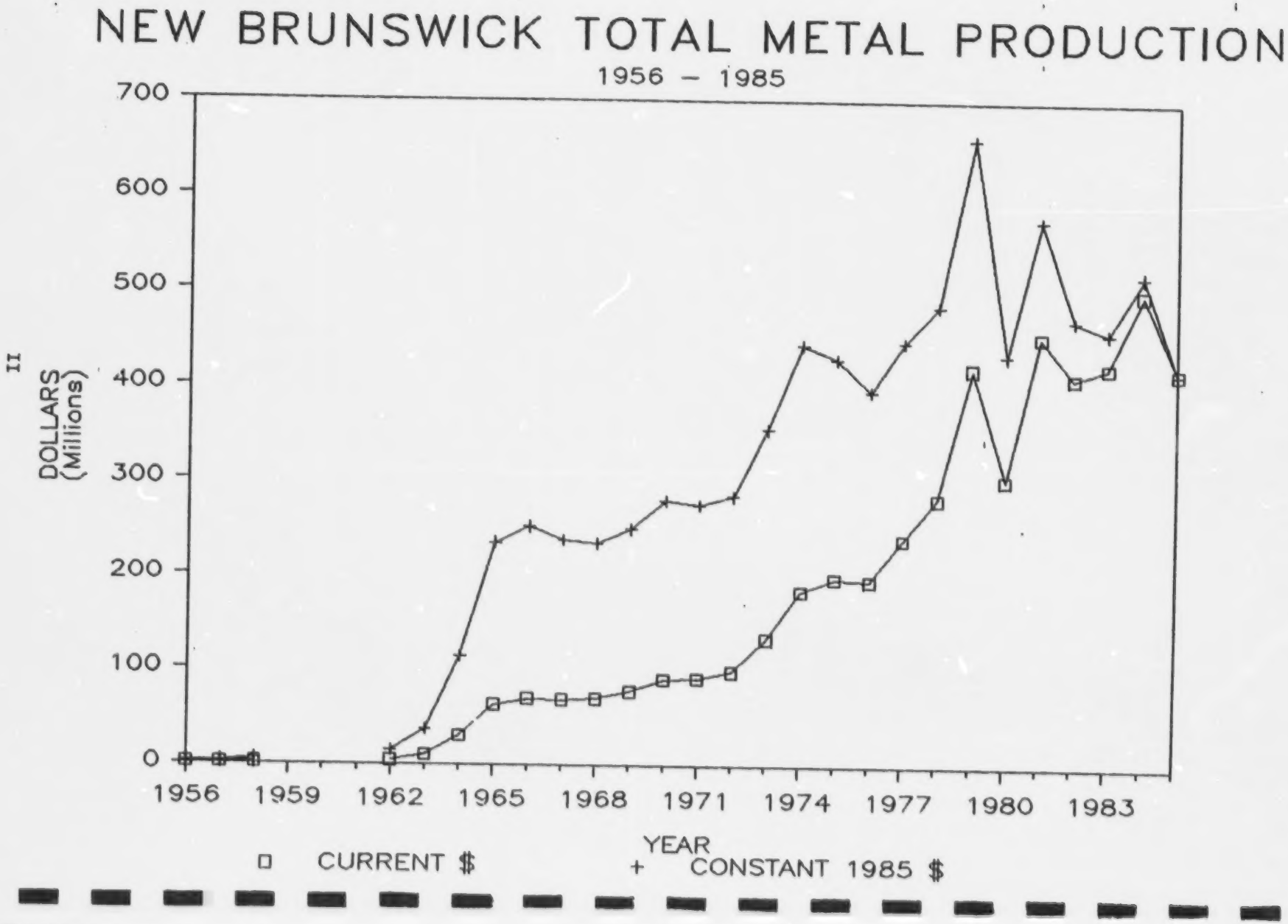

NEW BRUNSWICK TOTAL METAL PRODUCTION
1956 – 1985
DOLLARS (Millions)
700
600
500
400
300
200
100
0
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
YEAR
CURRENT $
CONSTANT 1985 $

Figure 3

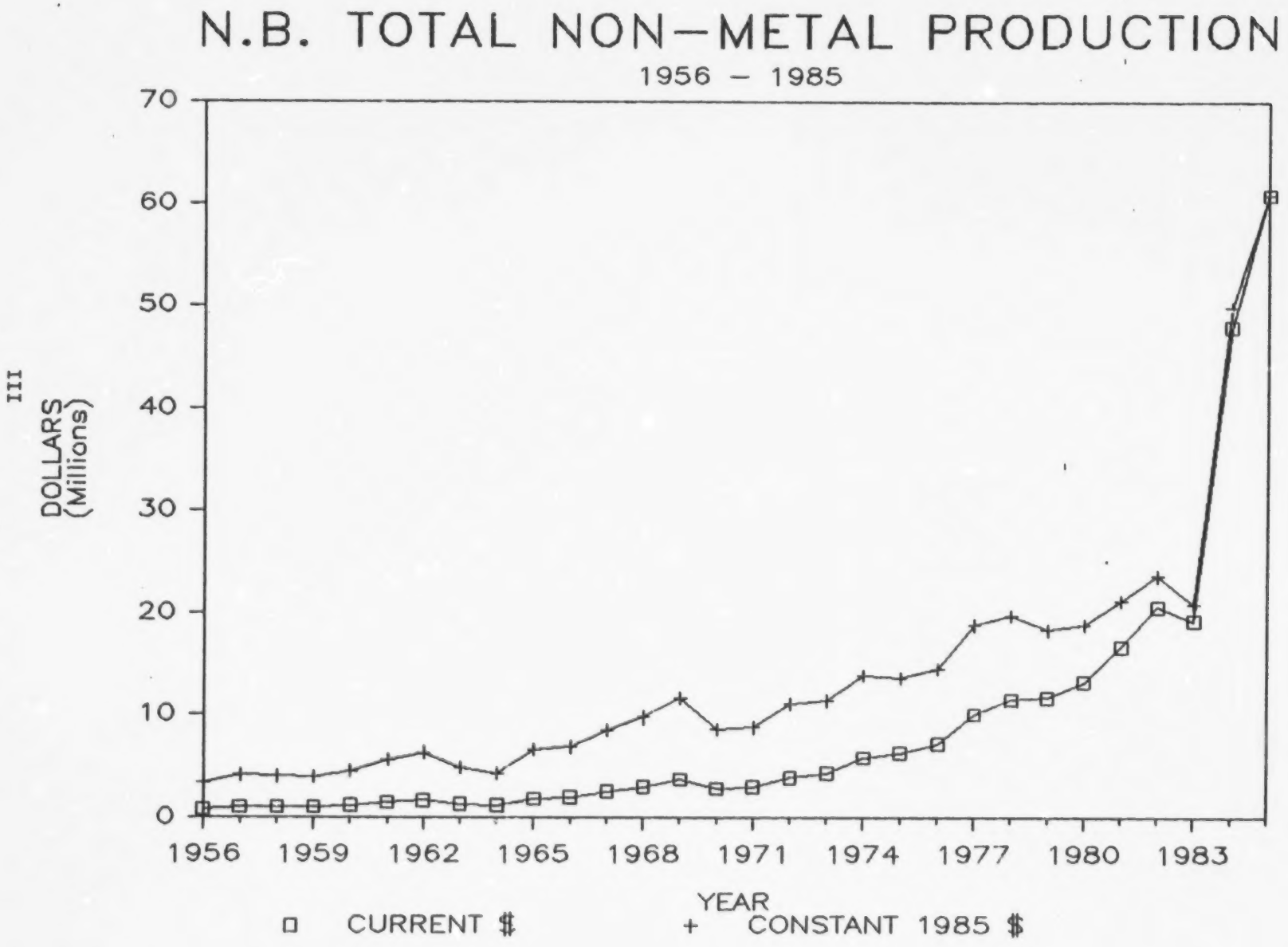

N.B. TOTAL NON-METAL PRODUCTION
1956 - 1985
DOLLARS (Millions)
70
60
50
40
30
20
10
0
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
YEAR
CURRENT $
CONSTANT 1985 $

Figure 4

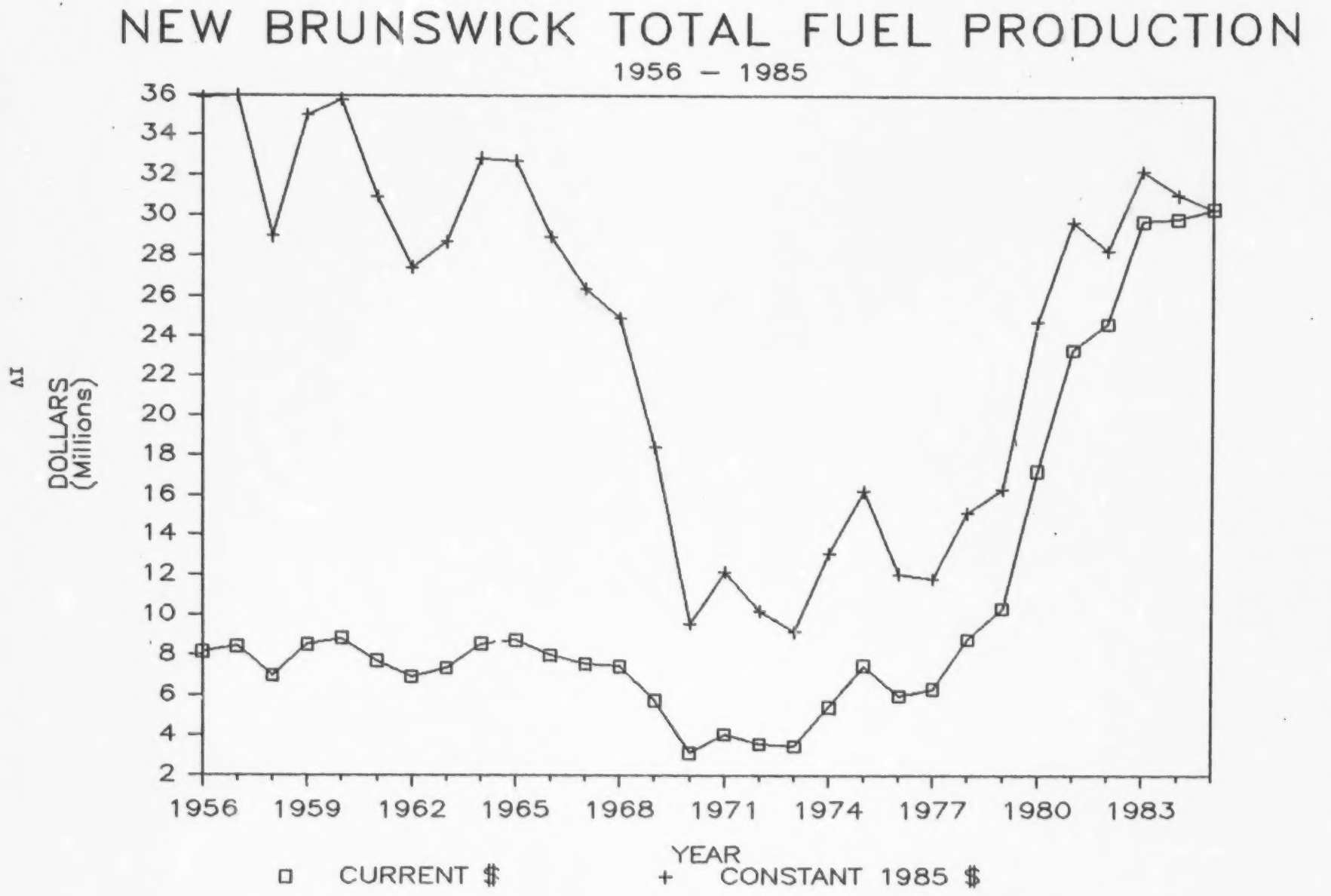

NEW BRUNSWICK TOTAL FUEL PRODUCTION
1956 – 1985
DOLLARS (Millions)
36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
YEAR
CURRENT $
CONSTANT 1985 $

Figure 5

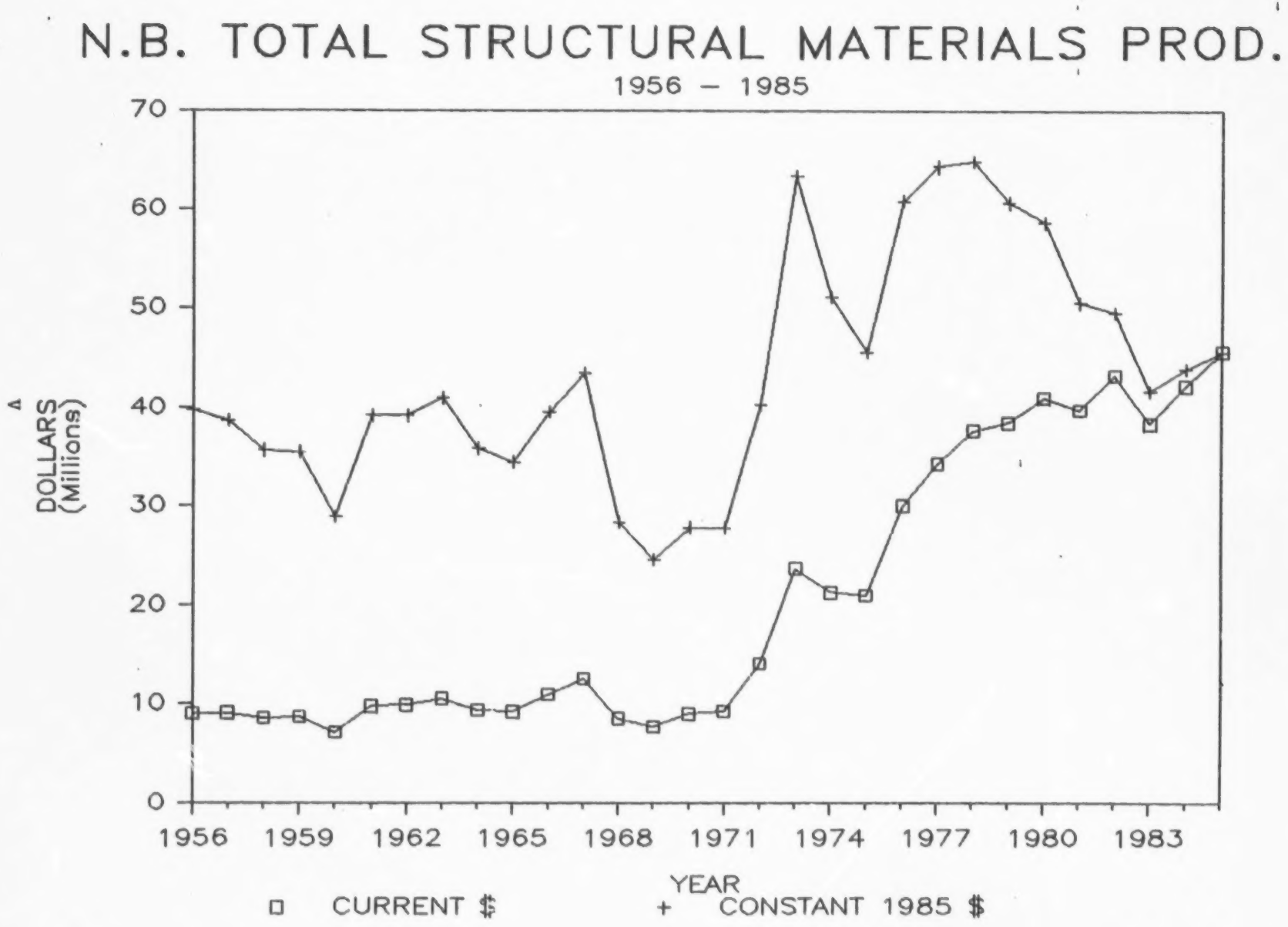

N.B. TOTAL STRUCTURAL MATERIALS PROD.
1956 – 1985
DOLLARS (Millions)
70
60
50
40
30
20
10
0
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
YEAR
CURRENT $
CONSTANT 1985 $

Figure 6

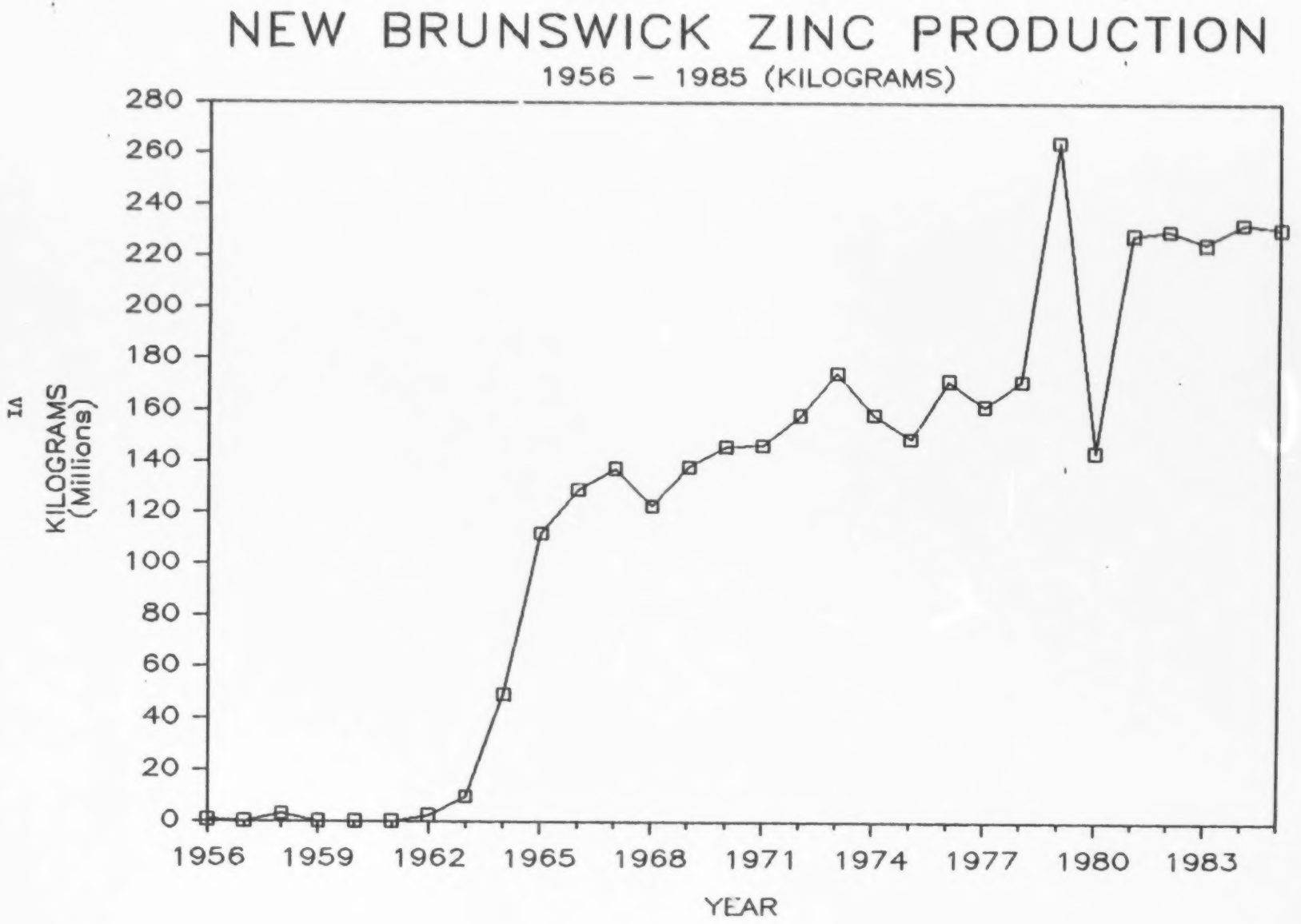

NEW BRUNSWICK ZINC PRODUCTION
1956 – 1985 (KILOGRAMS)
KILOGRAMS (Millions)
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
YEAR

Figure 7

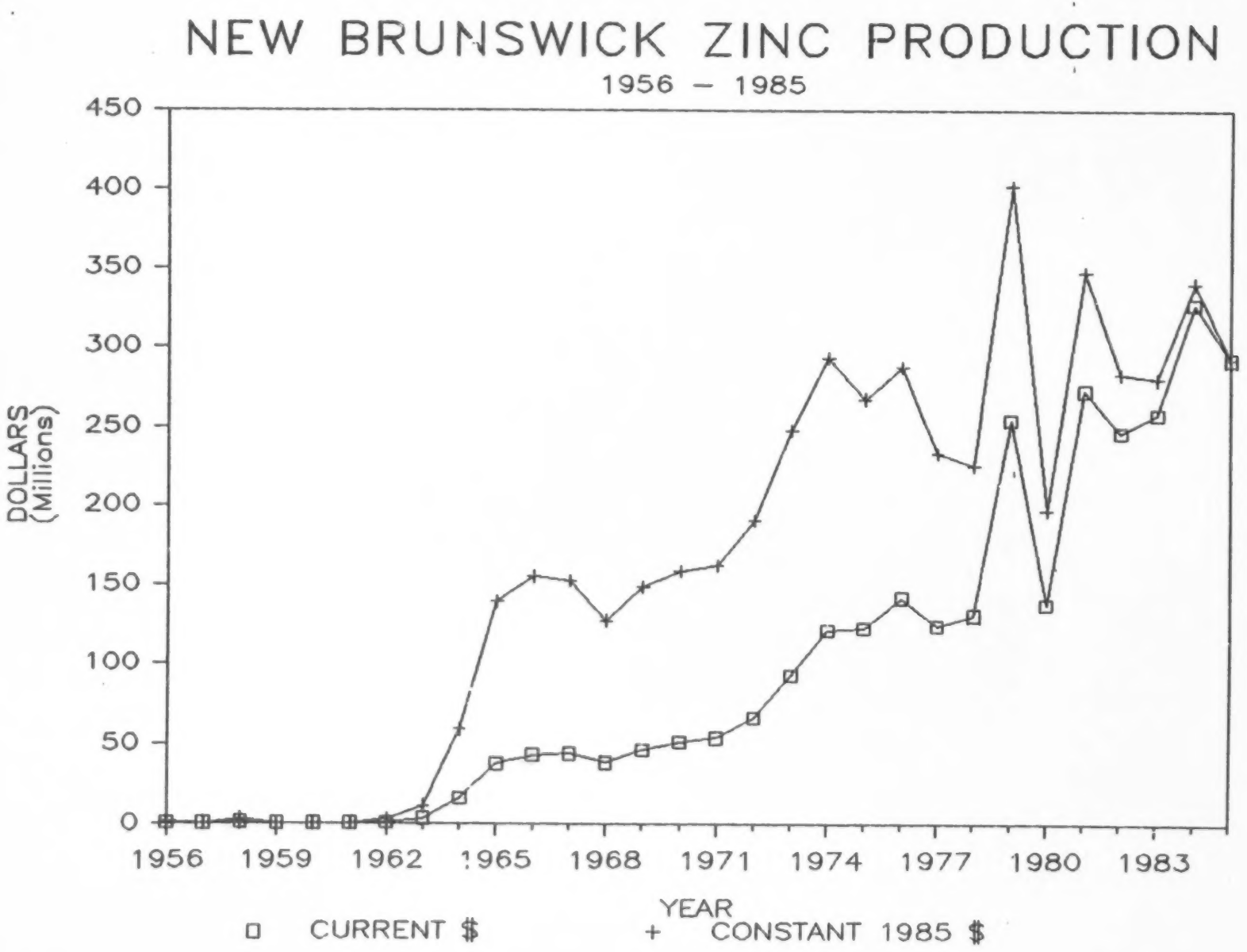

NEW BRUNSWICK ZINC PRODUCTION
1956 – 1985
DOLLARS (Millions)
450
400
350
300
250
200
150
100
50
0
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
YEAR
CURRENT $
CONSTANT 1985 $

Figure 8

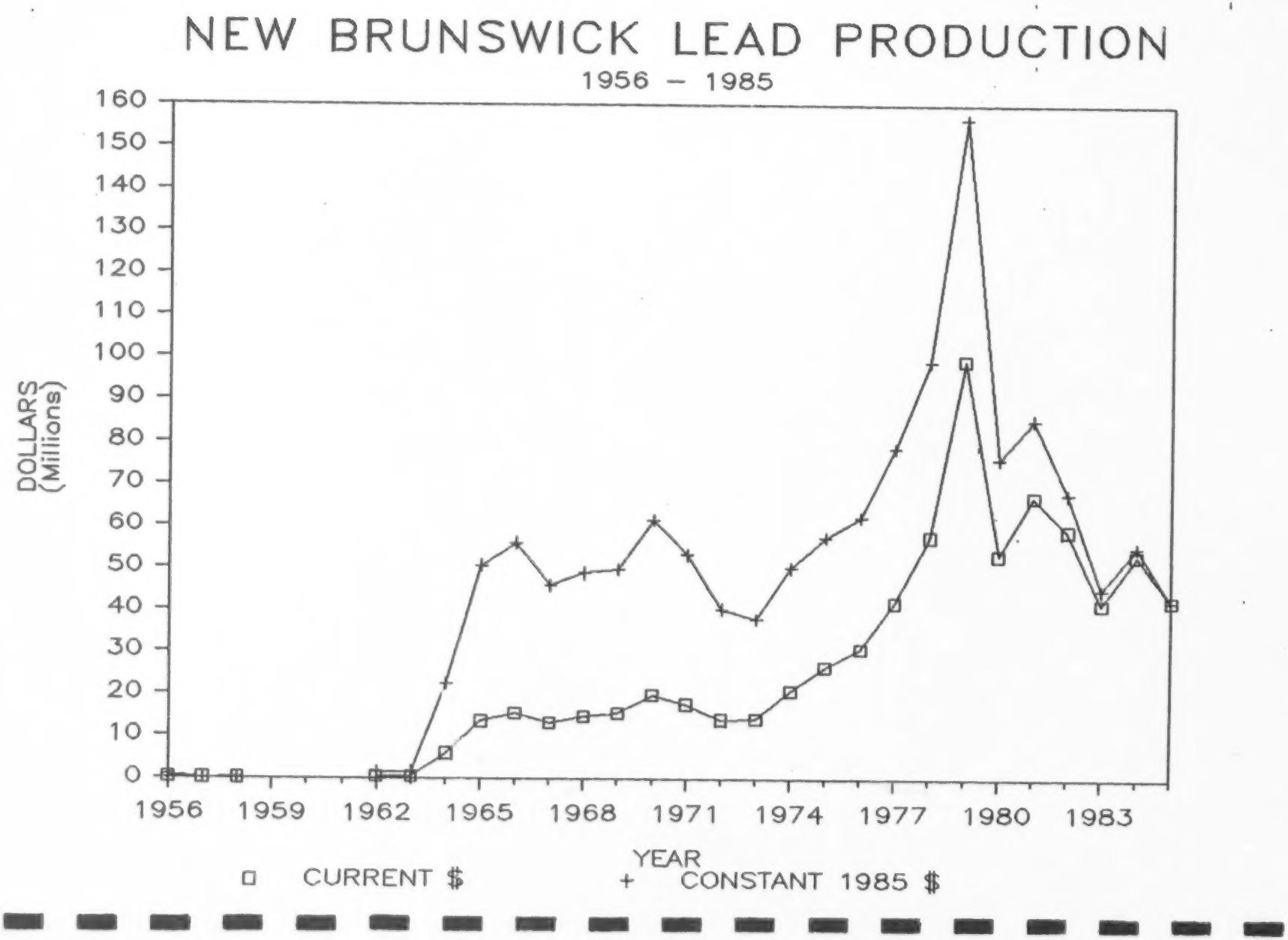

NEW BRUNSWICK LEAD PRODUCTION
1956 – 1985
DOLLARS (Millions)
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
YEAR
CURRENT $
CONSTANT 1985 $

Figure 9

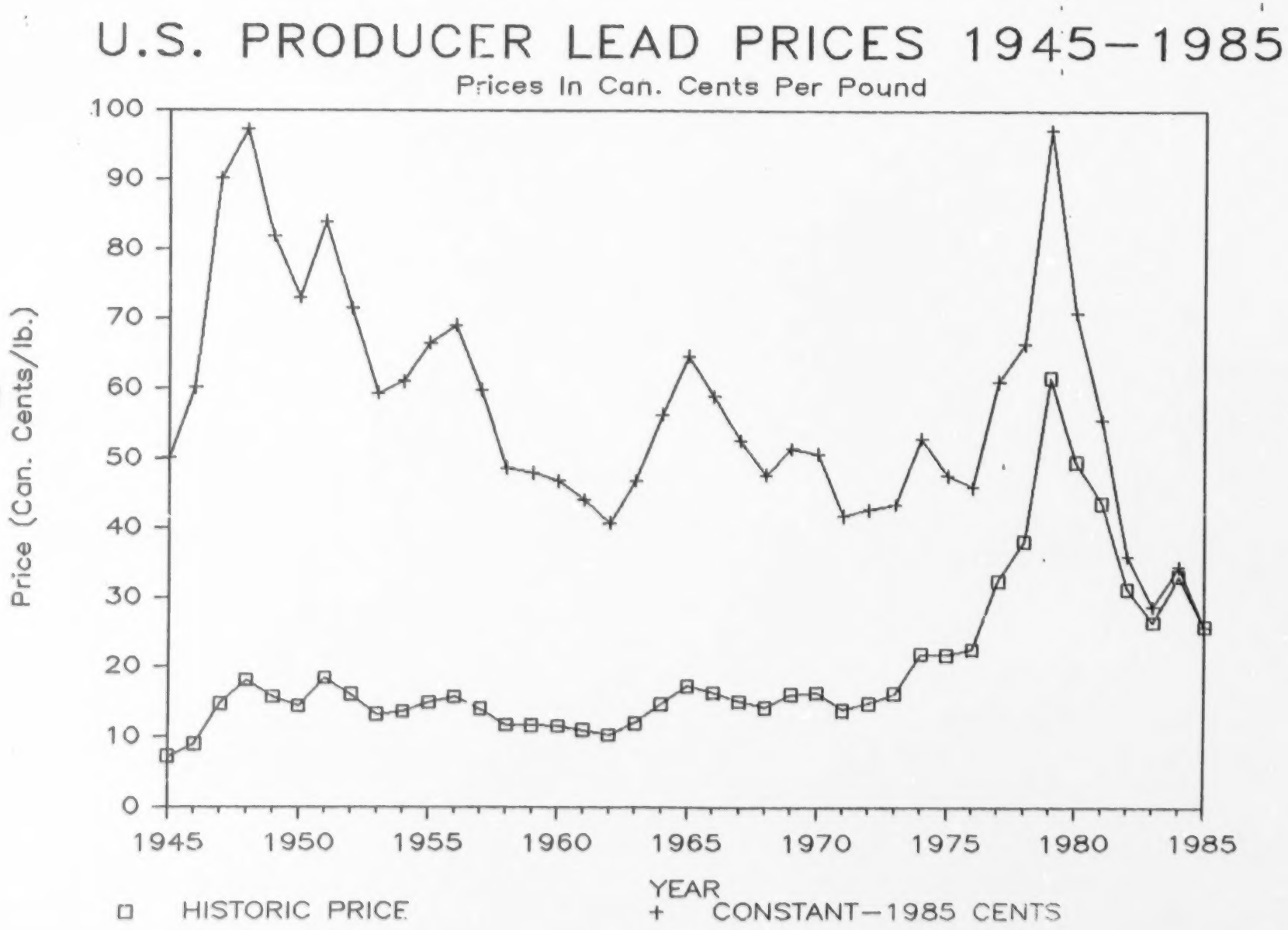

U.S. PRODUCER LEAD PRICES 1945–1985
Prices In Can. Cents Per Pound
Price (Can. Cents/lb.)
100
90
80
70
60
50
40
30
20
10
0
1945
1950
1955
1960
1965
1970
1975
1980
1985
YEAR
HISTORIC PRICE
CONSTANT–1985 CENTS

Figure 10

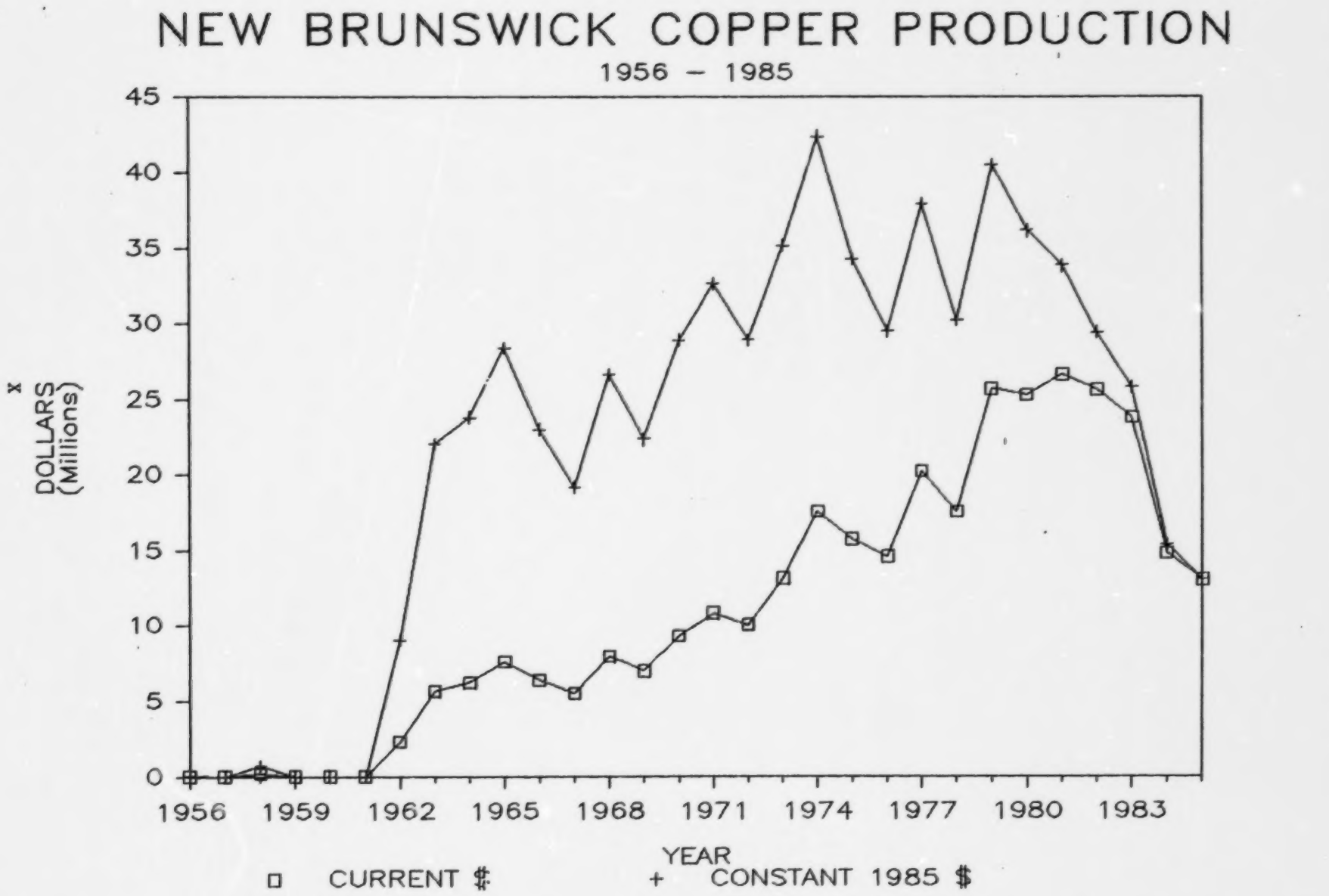

NEW BRUNSWICK COPPER PRODUCTION
1956 – 1985
x
DOLLARS (Millions)
45
40
35
30
25
20
15
10
5
0
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
YEAR
CURRENT $
CONSTANT 1985 $

Figure 11

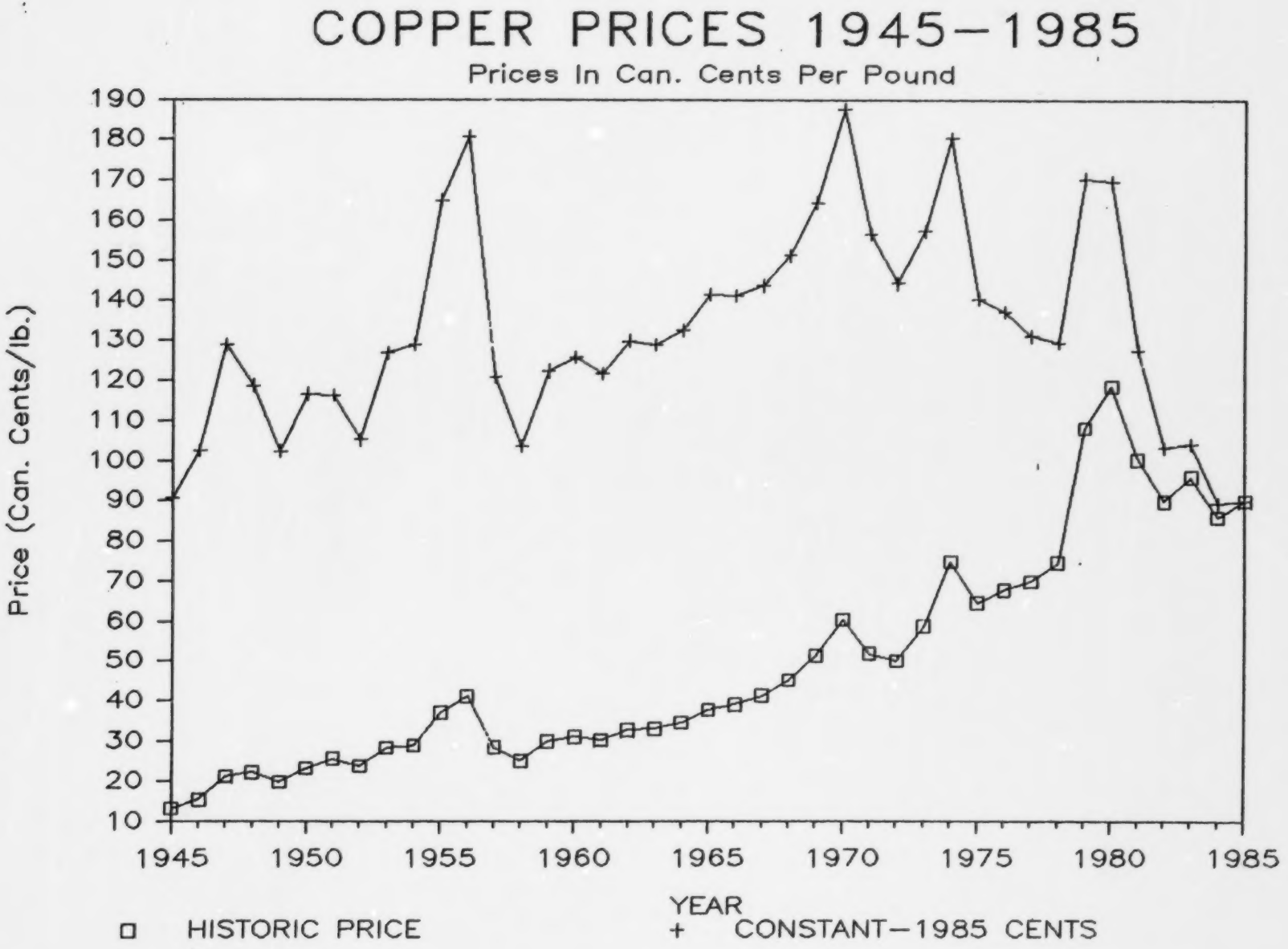

COPPER PRICES 1945–1985
Prices In Can. Cents Per Pound
Price (Can. Cents/lb.)
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
1945
1950
1955
1960
1965
1970
1975
1980
1985
YEAR
HISTORIC PRICE
CONSTANT–1985 CENTS

Figure 12

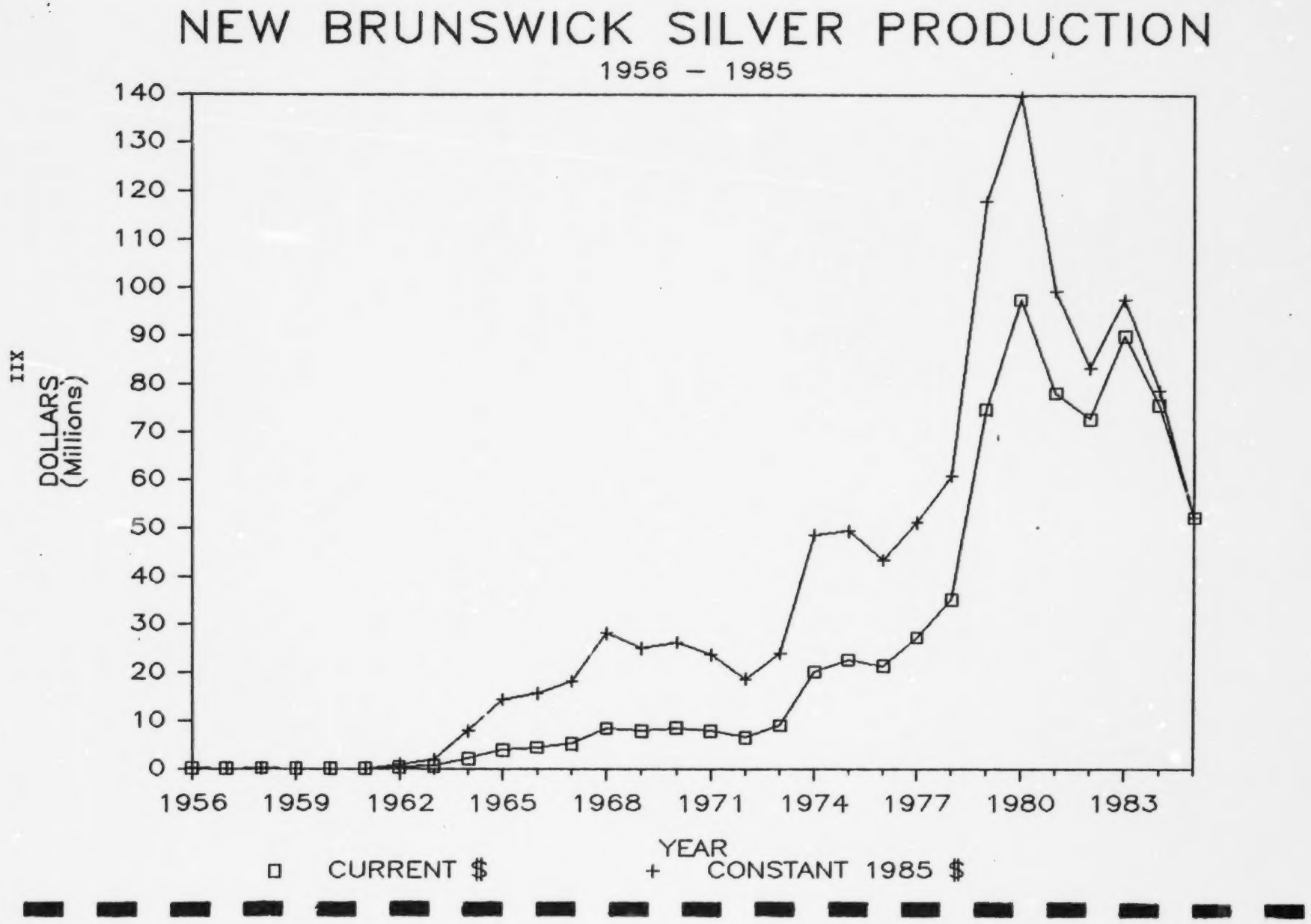

NEW BRUNSWICK SILVER PRODUCTION
1956 – 1985
DOLLARS (Millions)
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
YEAR
CURRENT $
CONSTANT 1985 $

Figure 13

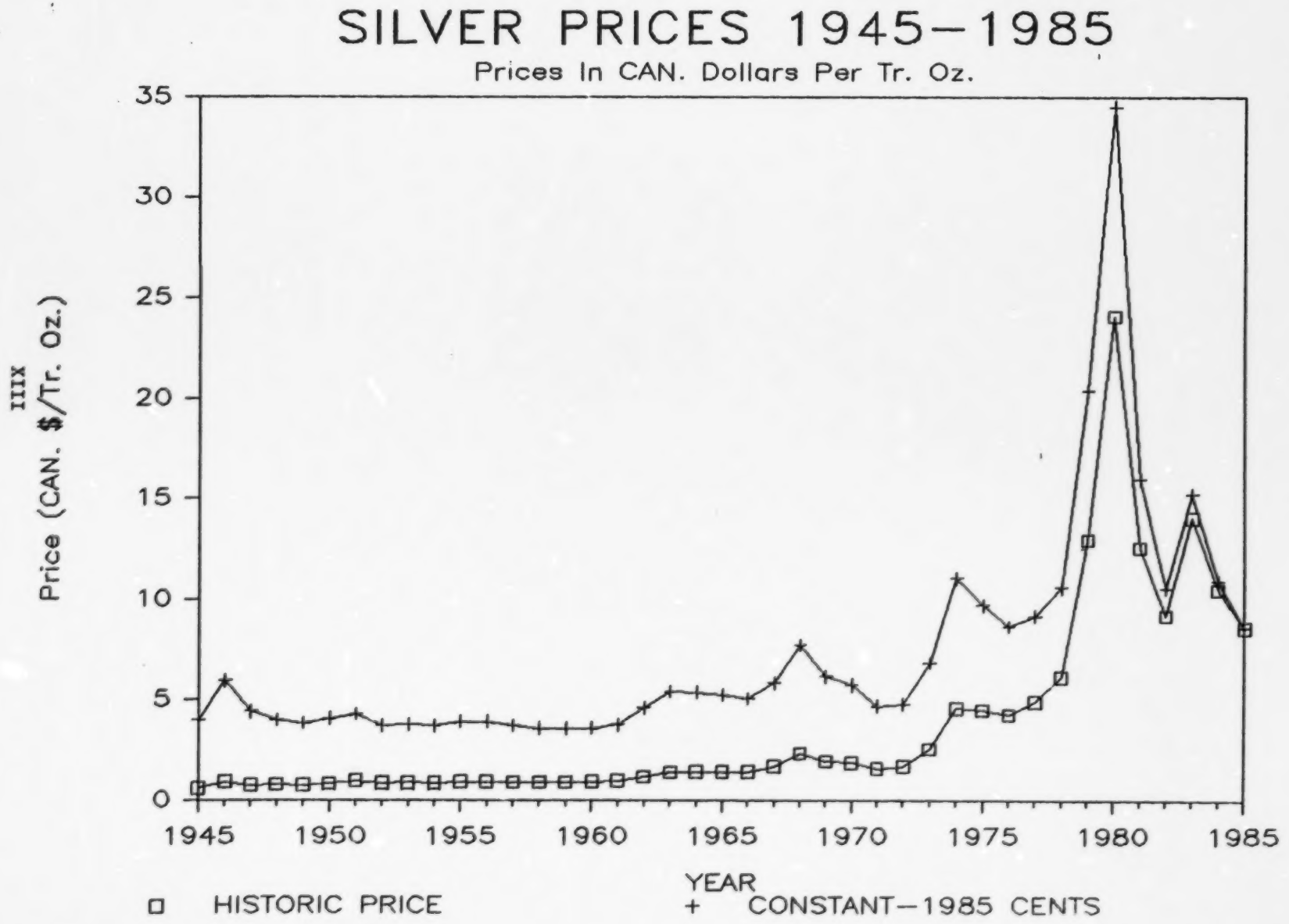

SILVER PRICES 1945–1985
Prices In CAN. Dollars Per Tr. Oz.
Price (CAN. $/Tr. Oz.)
35
30
25
20
15
10
5
0
1945
1950
1955
1960
1965
1970
1975
1980
1985
YEAR
HISTORIC PRICE
CONSTANT–1985 CENTS

Figure 14

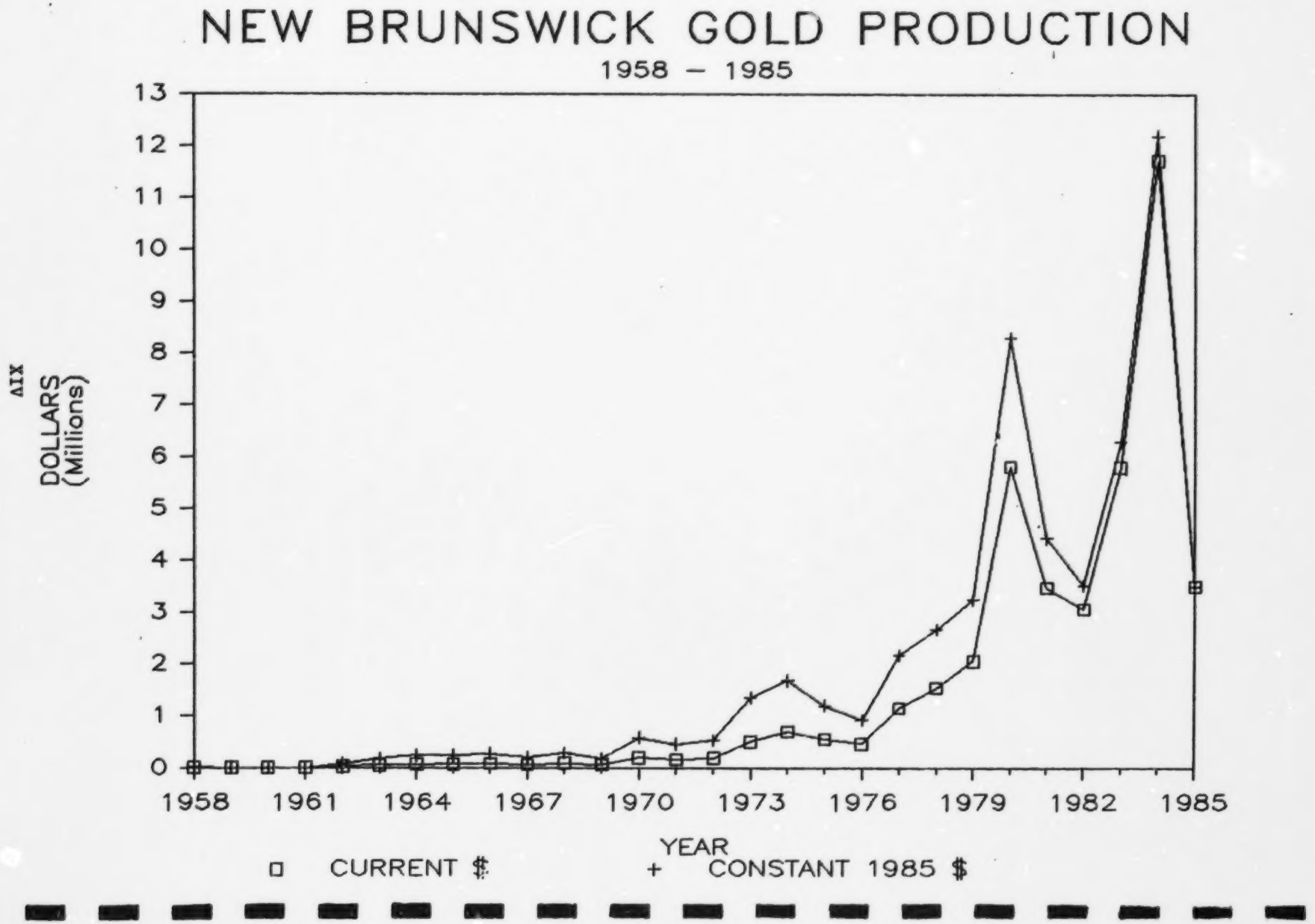

NEW BRUNSWICK GOLD PRODUCTION
1958 – 1985
DOLLARS (Millions)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
1958
1961
1964
1967
1970
1973
1976
1979
1982
1985
YEAR
CURRENT $
CONSTANT 1985 $

Figure 15

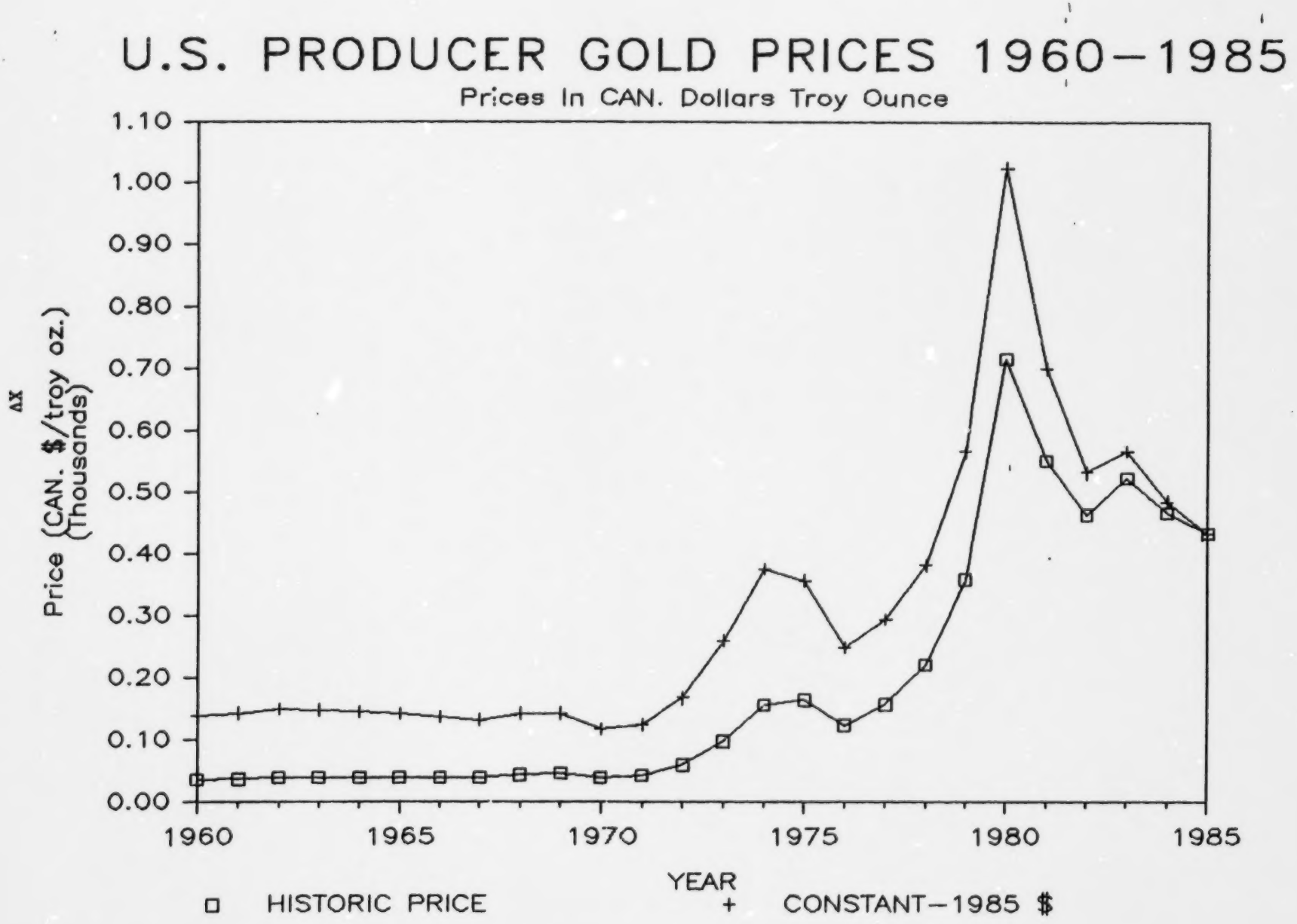

U.S. PRODUCER GOLD PRICES 1960–1985
Prices In CAN. Dollars Troy Ounce
Price (CAN. $/troy oz.)
(Thousands)
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1960
1965
1970
1975
1980
1985
YEAR
HISTORIC PRICE
CONSTANT–1985 $

Figure 16

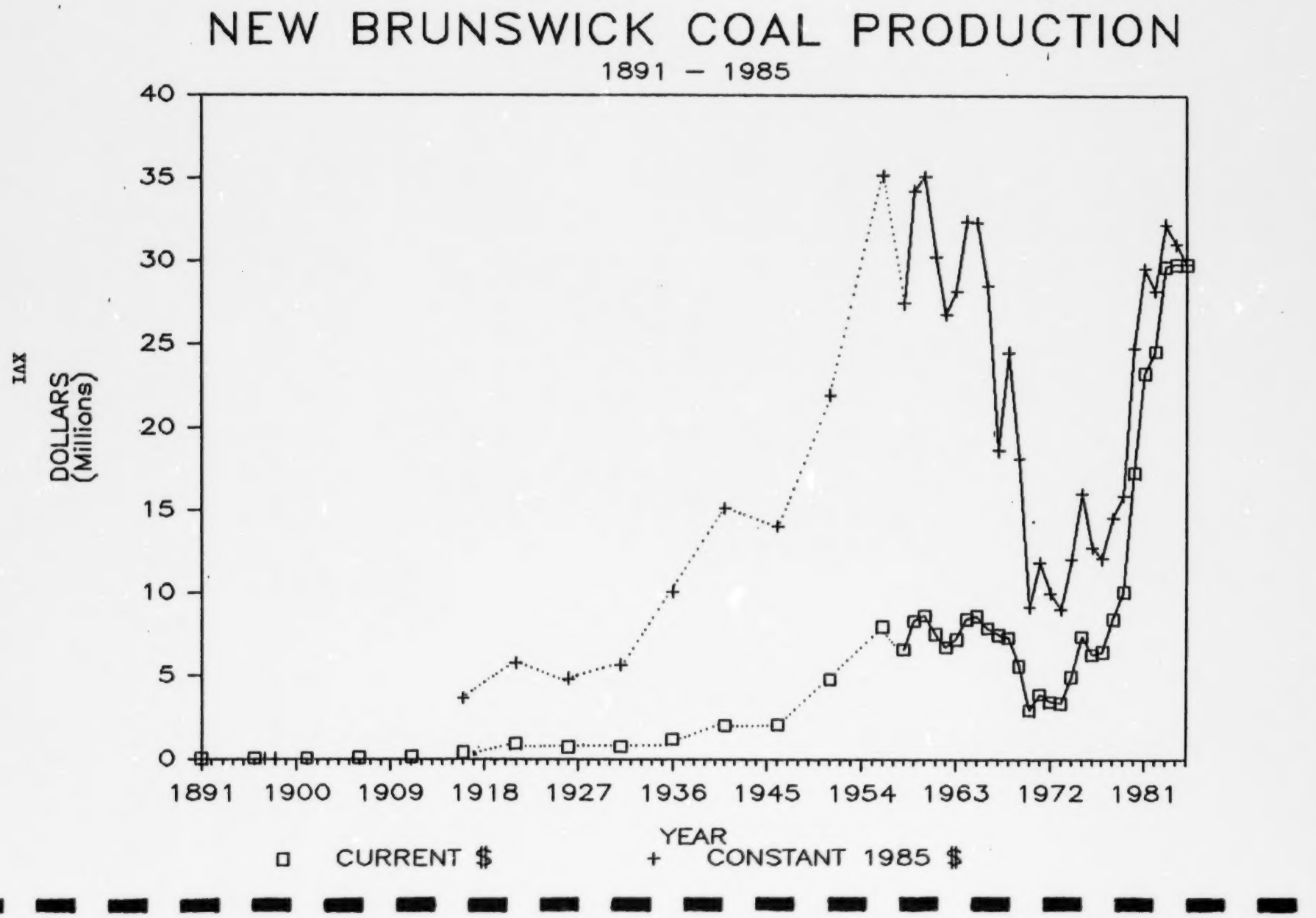

NEW BRUNSWICK COAL PRODUCTION
1891 – 1985
DOLLARS (Millions)
0
5
10
15
20
25
30
35
40
1891
1900
1909
1918
1927
1936
1945
1954
1963
1972
1981
YEAR
CURRENT $
CONSTANT 1985 $

Figure 17

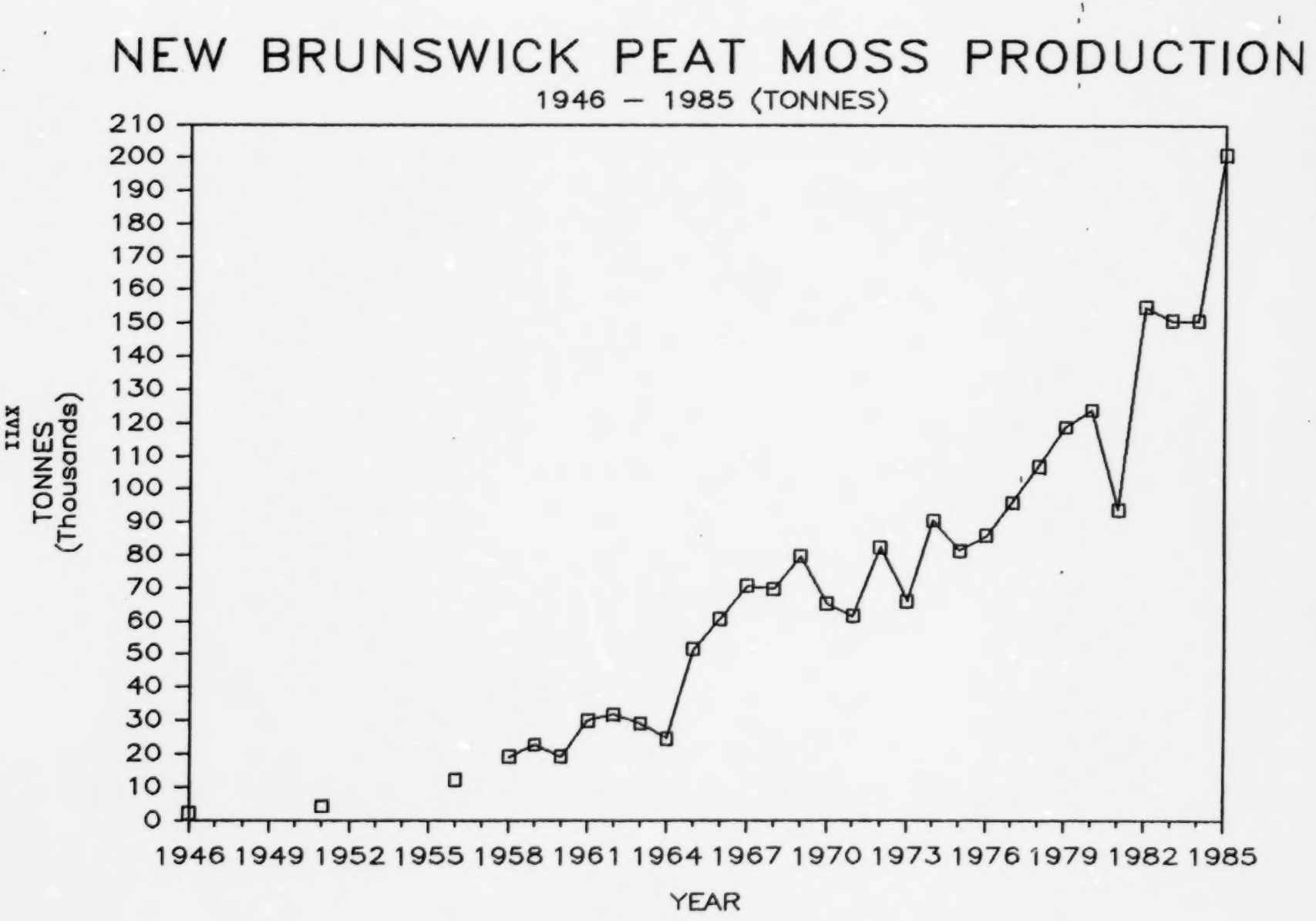

NEW BRUNSWICK PEAT MOSS PRODUCTION
1946 – 1985 (TONNES)
TONNES (Thousands)
MAX
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
1946 1949 1952 1955 1958 1961 1964 1967 1970 1973 1976 1979 1982 1985
YEAR

Figure 18

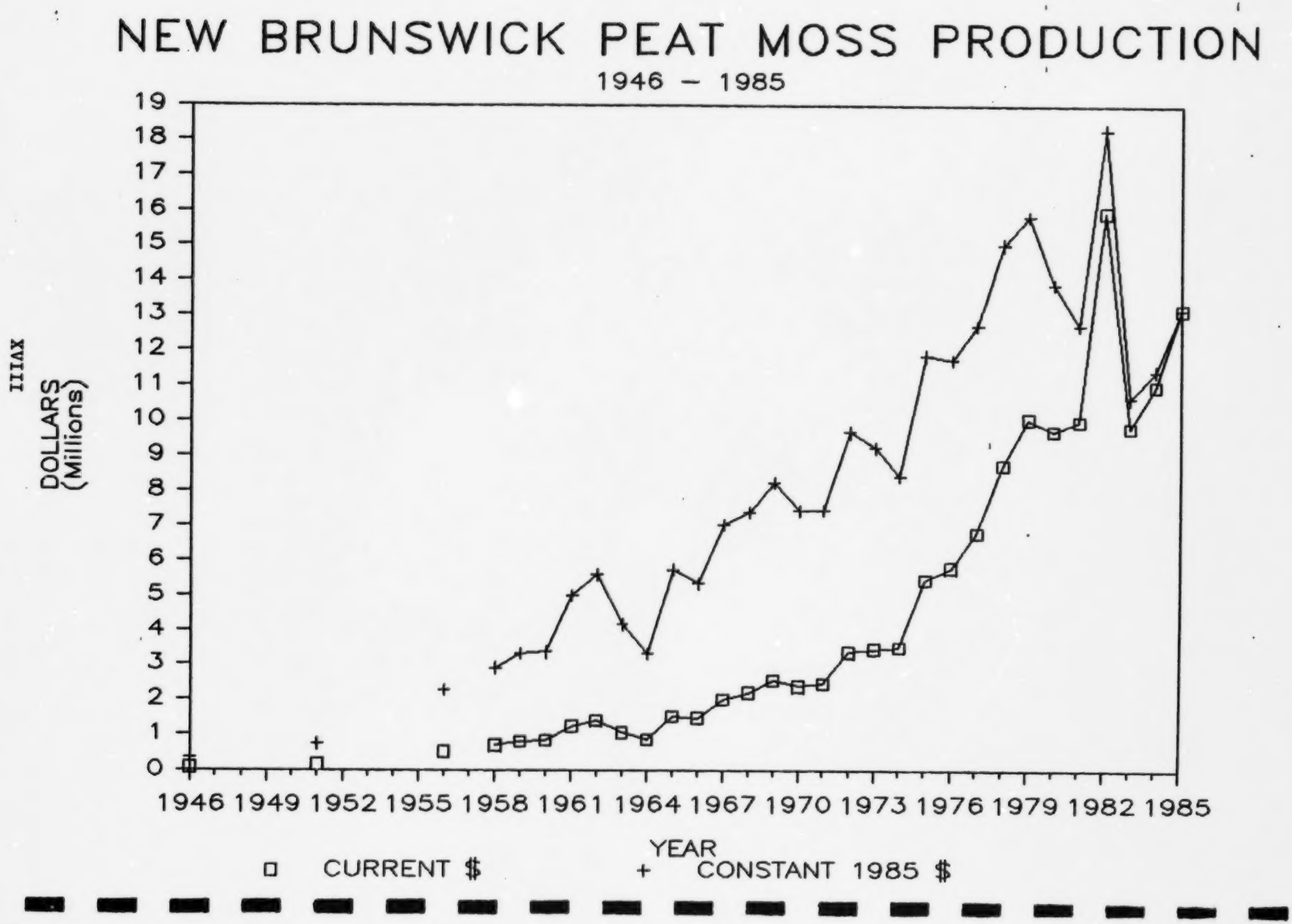

NEW BRUNSWICK PEAT MOSS PRODUCTION
1946 – 1985
DOLLARS (Millions)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
1946 1949 1952 1955 1958 1961 1964 1967 1970 1973 1976 1979 1982 1985
YEAR
CURRENT $
CONSTANT 1985 $

FIGURE 19

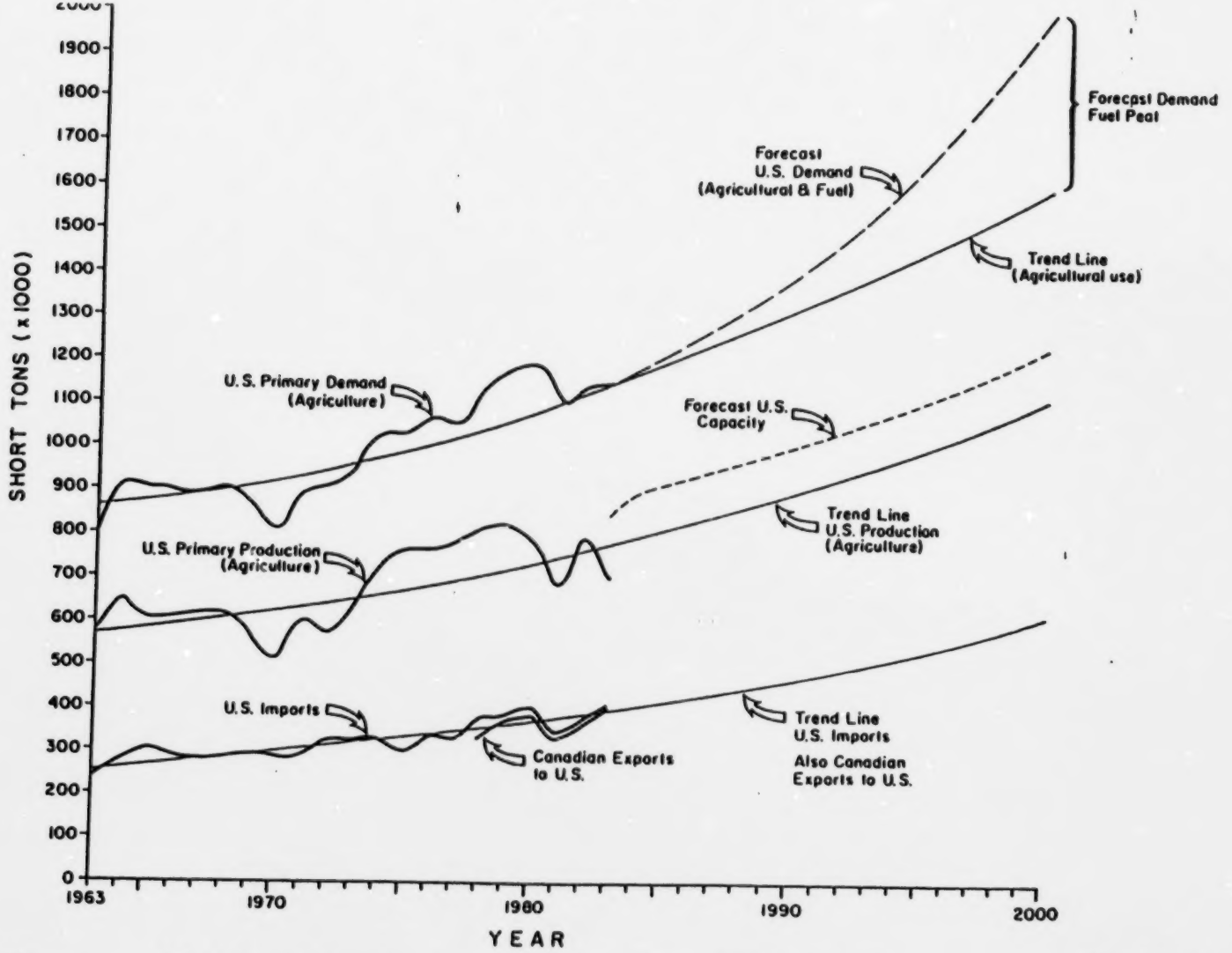


Figure Historic and forecast U.S. peat consumption (1963 - 2000)

Shaw & Chandra F.M.& E. 1986

Figure 20

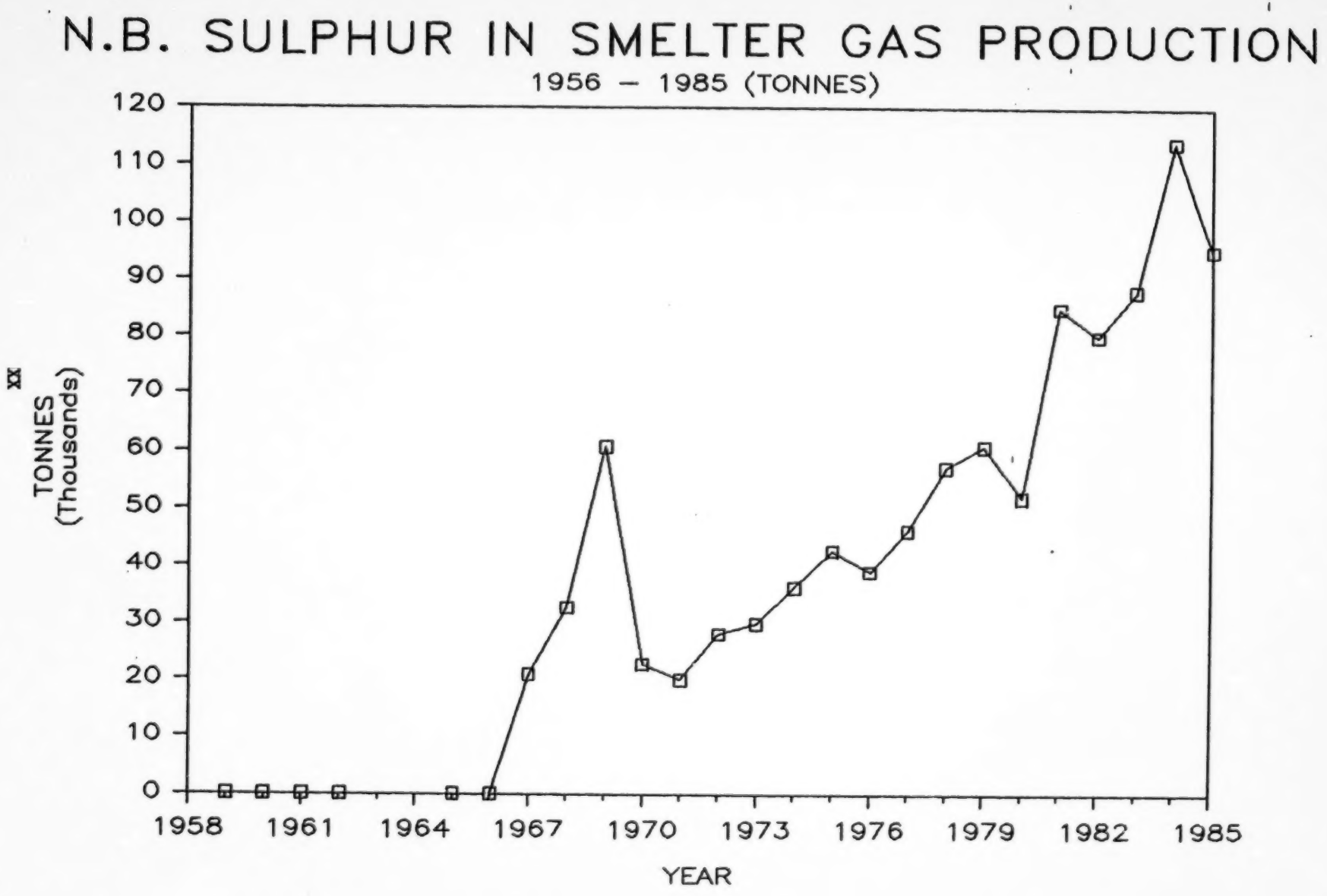

N.B. SULPHUR IN SMELTER GAS PRODUCTION
1956 – 1985 (TONNES)
TONNES (Thousands)
120
110
100
90
80
70
60
50
40
30
20
10
0
1958
1961
1964
1967
1970
1973
1976
1979
1982
1985
YEAR

Figure 21

N.B. SULPHUR IN SMELTER GAS PRODUCTION

1958 – 1985

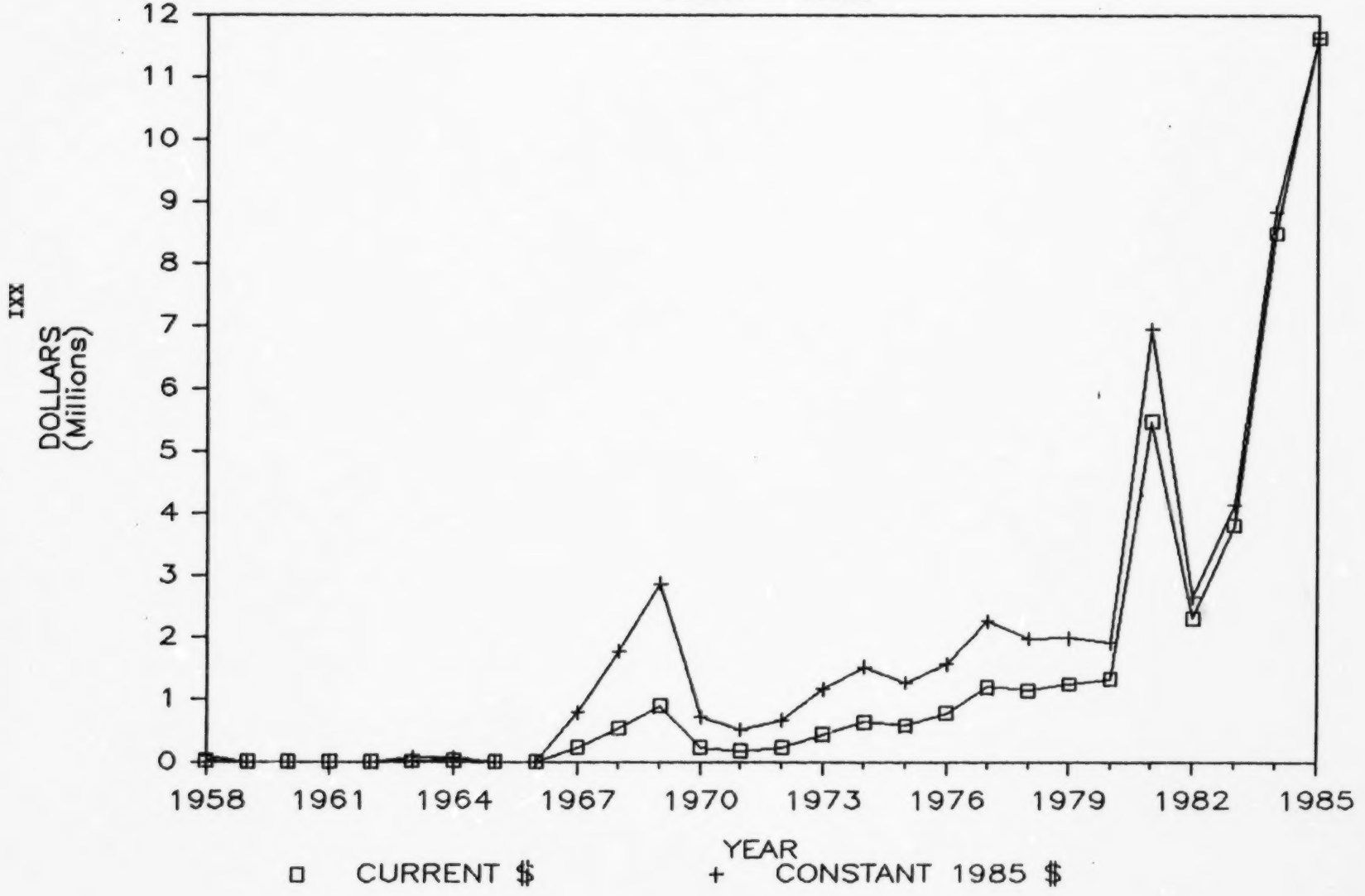


Figure 22

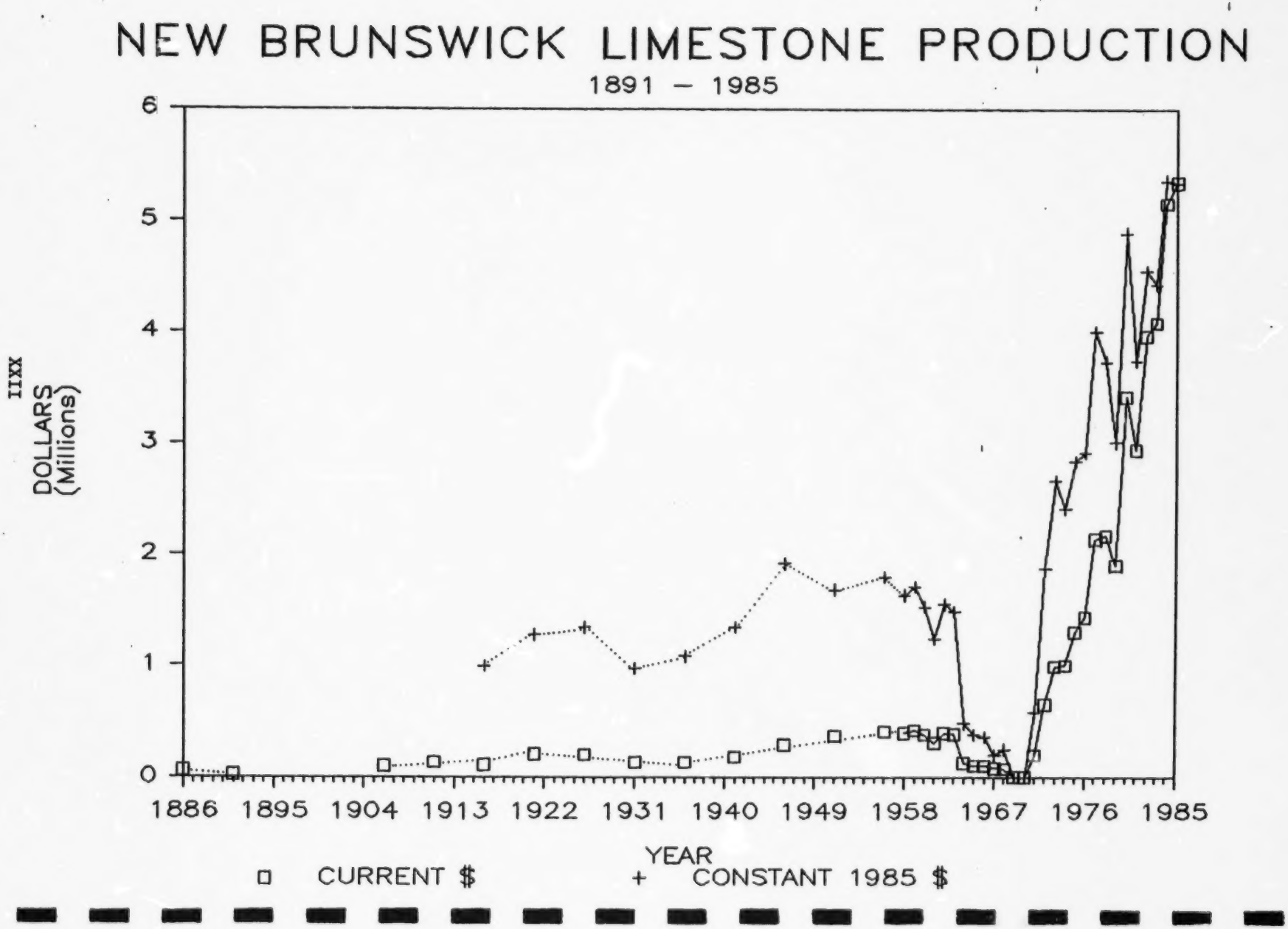

NEW BRUNSWICK LIMESTONE PRODUCTION
1891 – 1985
DOLLARS (Millions)
0
1
2
3
4
5
6
1886 1895 1904 1913 1922 1931 1940 1949 1958 1967 1976 1985
YEAR
CURRENT $
CONSTANT 1985 $

Figure 23

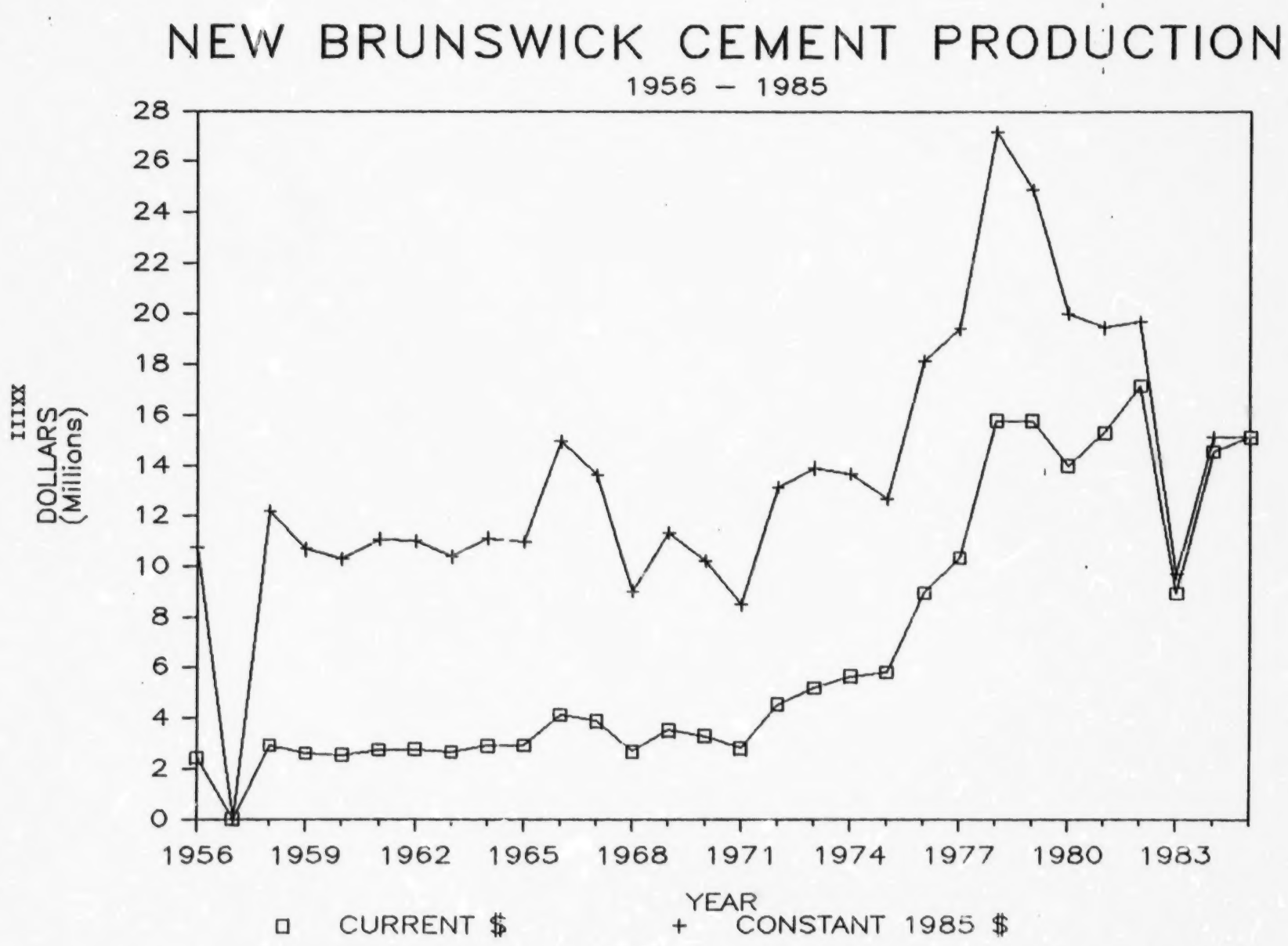

NEW BRUNSWICK CEMENT PRODUCTION
1956 – 1985
DOLLARS (Millions)
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
YEAR
CURRENT $
CONSTANT 1985 $

Figure 24

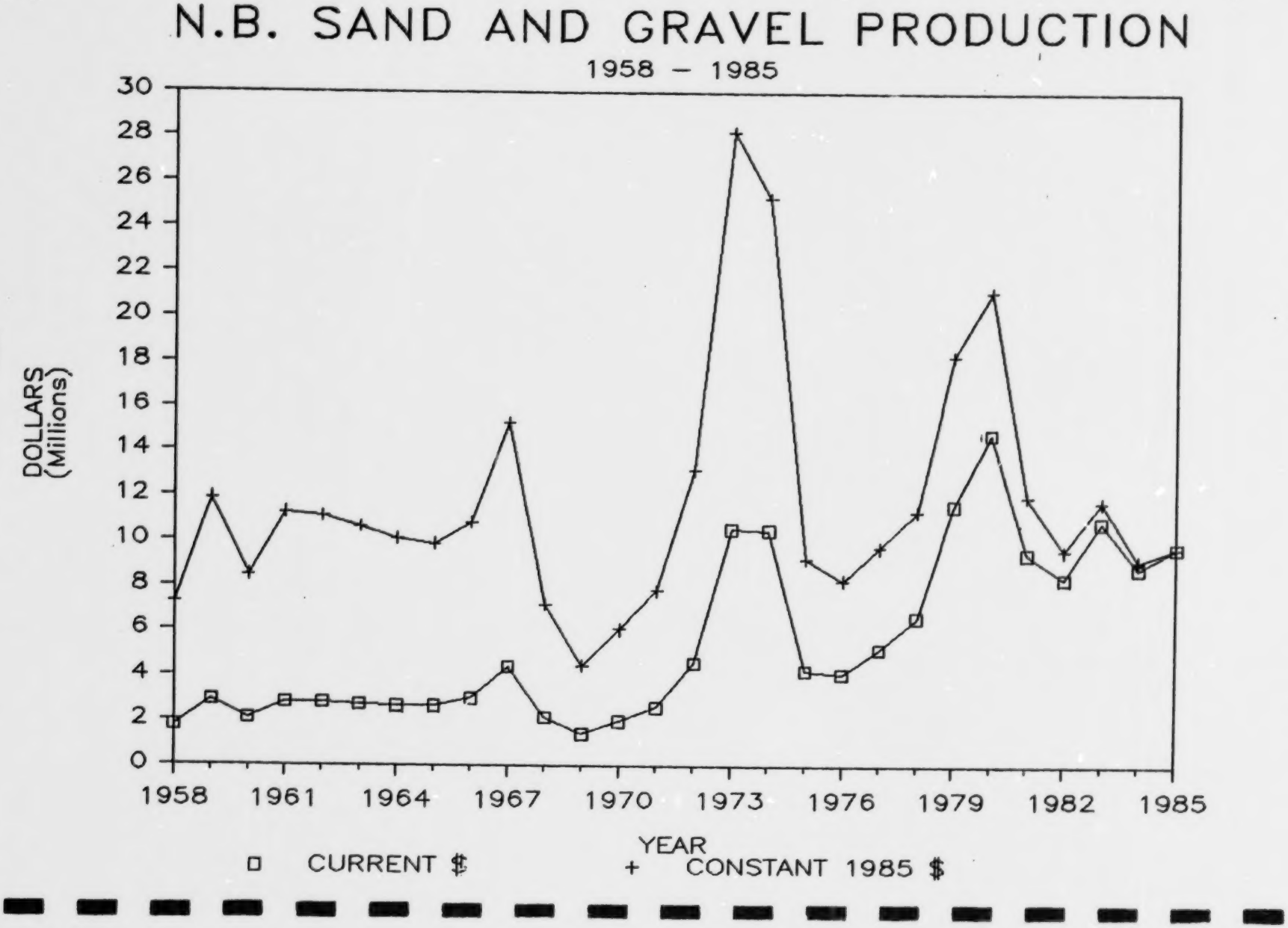

N.B. SAND AND GRAVEL PRODUCTION
1958 – 1985
DOLLARS (Millions)
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
1958
1961
1964
1967
1970
1973
1976
1979
1982
1985
YEAR
CURRENT $
CONSTANT 1985 $

Figure 25

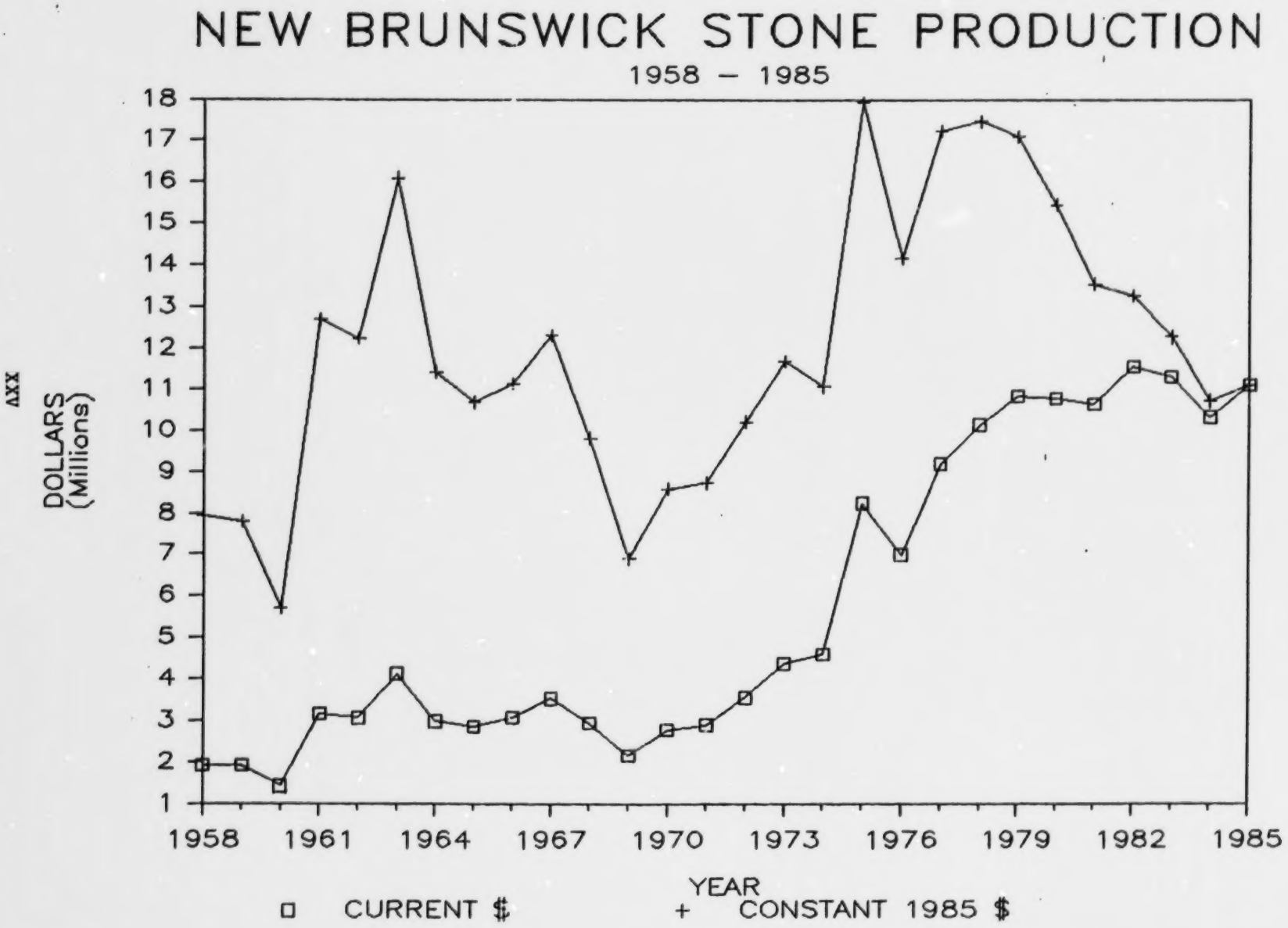

NEW BRUNSWICK STONE PRODUCTION
1958 – 1985
DOLLARS (Millions)
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
1958
1961
1964
1967
1970
1973
1976
1979
1982
1985
YEAR
CURRENT $
CONSTANT 1985 $

FIGURE 26

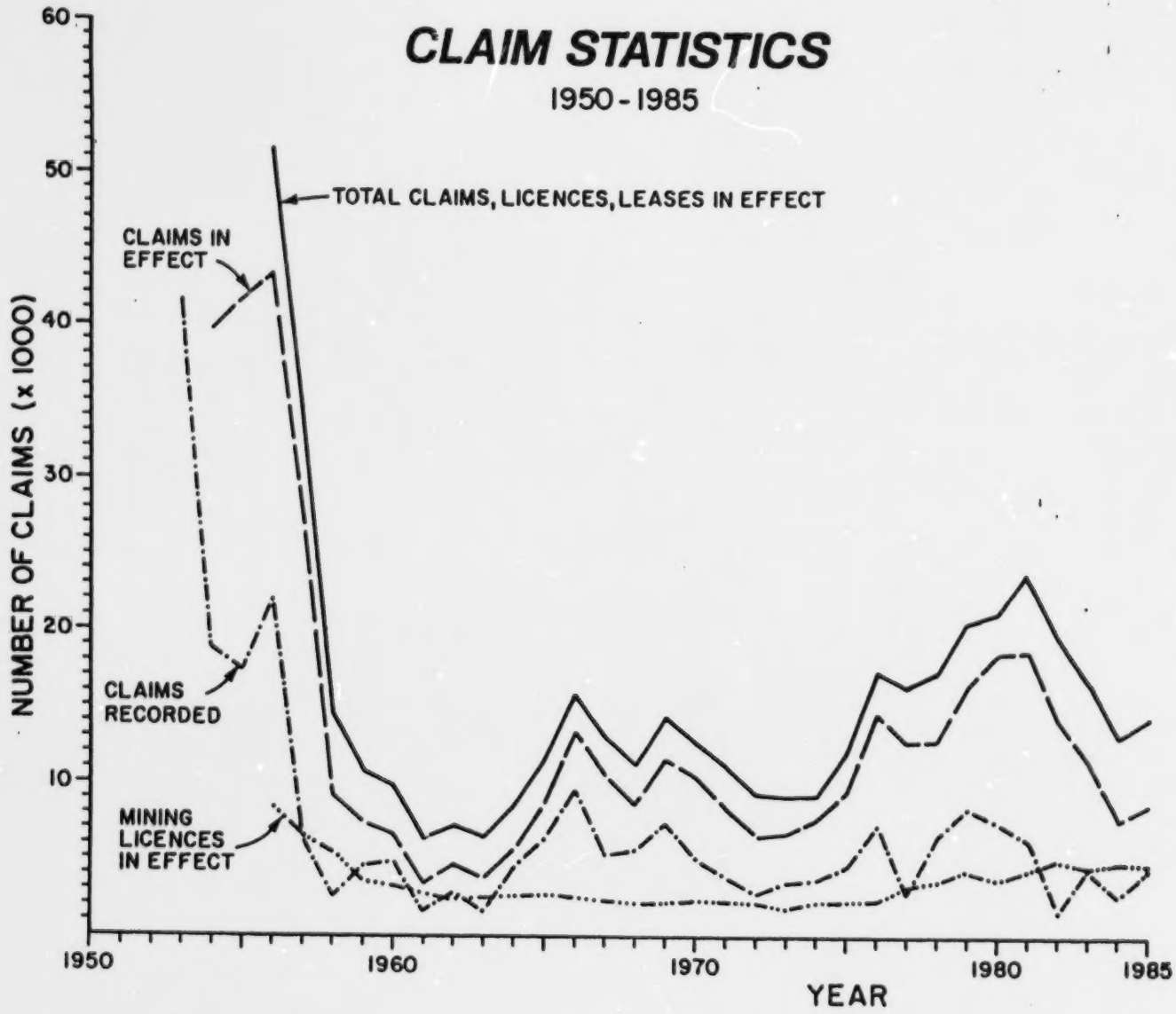
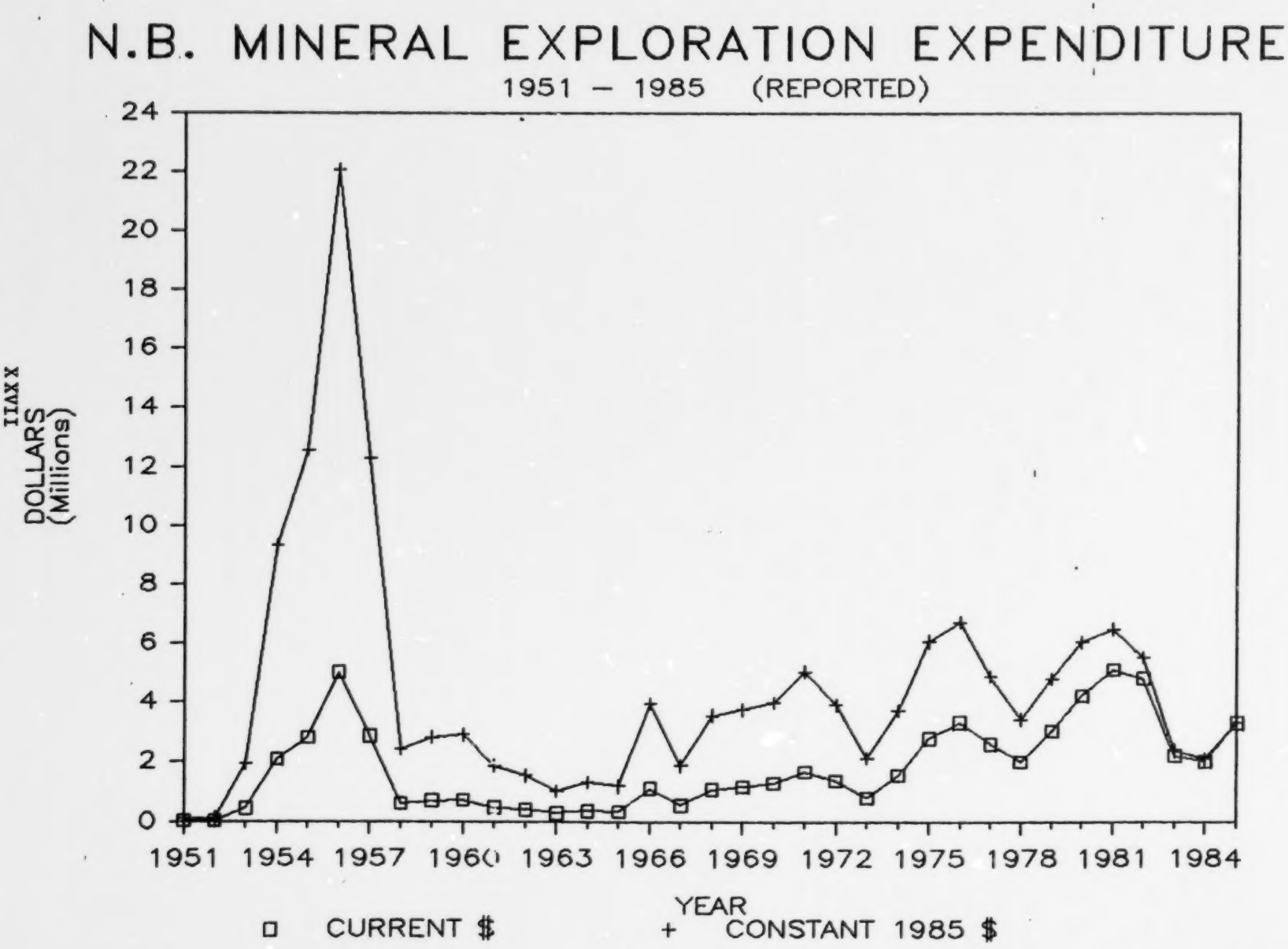

CLAIM STATISTICS
1950 - 1985
TOTAL CLAIMS, LICENCES, LEASES IN EFFECT
CLAIMS IN EFFECT
CLAIMS RECORDED
MINING LICENCES IN EFFECT
NUMBER OF CLAIMS (x 1000)
60
50
40
30
20
10
1950
1960
1970
1980
1985
YEAR

Figure 27


N.B. MINERAL EXPLORATION EXPENDITURE
1951 – 1985 (REPORTED)
DOLLARS (Millions)
IIAXX
24
22
20
18
16
14
12
10
8
6
4
2
0
1951 1954 1957 1960 1963 1966 1969 1972 1975 1978 1981 1984
YEAR
CURRENT $
CONSTANT 1985 $

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